THIRD ANNUAL REPORT
OF THE
BOARD OF COMMISSIONERS
OF THE
DEPARTMENT OF PUBLIC PARKS, N.Y.

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THIRD GENERAL REPORT

OF THE

BOARD OF COMMISSIONERS

OF THE

Department of Public Parks

FOR THE

PERIOD OF TWENTY MONTHS,

From May 1st, 1872, to December 31st, 1873.

NEW YORK:
WILLIAM C. BRYANT & CO.
1875.

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BOARD OF COMMISSIONERS

OF THE

DEPARTMENT OF PUBLIC PARKS.

1872.

ANDREW H. GREEN, FREDERICK E. CHURCH,
THOMAS C. FIELDS.

HENRY G. STEBBINS, . .	Resigned 28th May. Re-appointed 23d October.
FREDK. LAW OLMSTED, .	Appointed 28th May. Resigned 23d October.
ROBERT J. DILLON, ...	Died 26th November.
RICHARD M. BLATCHFORD,	Appointed 3d December.

1873.

ANDREW H. GREEN, FREDK. E. CHURCH,
HENRY G. STEBBINS, RICHD. M. BLATCHFORD,

THOMAS C. FIELDS, . .	Removed from the State.
SALEM H. WALES, . . .	Appointed 13th January.

The terms of office of the above named Commissioners expired on 1st May, under the provisions of Chapter 335, Laws of 1873.

HENRY G. STEBBINS, .	Continued in office by Chap. 335.
SALEM H. WALES, . .	Re-appointed 22d May, for 2 years, ending May 1st, 1875.
PHILIP BISSINGER, .	Appointed 22d May, for 4 years, ending May 1st, 1877.
DAVID B. WILLIAMSON,	Appointed 12th June, for 3 years, ending May 1st, 1876.
SAMUEL HALL, M.D., .	Appointed 19th June, for 1 year, ending May 1st, 1874.

ORGANIZATION.

1872.

President.

HENRY G. STEBBINS, .	To 28th May.
FREDK. LAW OLMSTED,	From 29th May to 23d October.
HENRY G. STEBBINS, .	From 24th October.

Vice-President.

ANDREW H. GREEN, . .	From 15th May.

Treasurer.

HENRY G. STEBBINS, .	To 28th May.
FREDK. LAW OLMSTED,	From 29th May to 24th October.
FREDK. W. WHITTEMORE,	From 24th October.

Clerk to the Board.

E. P. BARKER, ...	To 26th June.
FREDK. W. WHITTEMORE,	From 26th June to 10th July.

Secretary.

FREDK. W. WHITTEMORE,	From 10th July.

1873.

President.

HENRY G. STEBBINS, . .	To 31st July.
SALEM H. WALES, . . .	From 29th August.

Vice-President.

ANDREW H. GREEN, . .	To 1st May.
HENRY G. STEBBINS, .	From 29th August.

Treasurer.

FREDK. W. WHITTEMORE,	To 4th June.
DAVID B. WILLIAMSON,	From 29th August.

Secretary.

FREDK. W. WHITTEMORE,	To 4th June.
WILLIAM IRWIN, . . .	From 16th July.

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REPORT.

CITY OF NEW YORK,
DEPARTMENT OF PUBLIC PARKS,
36 Union Square.

To the Honorable WM. F. HAVEMEYER,
Mayor of the City of New York:

A history of the affairs of the Board of Commissioners of the Central Park from the date of its organization, April 20th, 1857, is given in its thirteen annual reports, by successive periods, each ending with the year. The period from January 1st to April 20th, 1870, is covered by their fourteenth report. The first annual report of the Department of Public Parks brings the history of some divisions of its affairs down to January 1st; of others, and most, to April 20th, 1871. Its second annual report extends the history of its business, in some parts, one year from the above dates; of others, to June 15th, 1872, when they were transferred to the Department of Public Works.

The present report is designed to make its record complete in all parts to the end of the year 1873.

ORGANIZATION.

On the 28th May, 1872, the President of the Board, Mr. Henry G. Stebbins, having occasion to temporarily leave the country, resigned from the Commission. His place was filled by Mr. Frederick Law Olmsted, who was elected President of the Board. On the 23d October, 1872, Mr. Olmsted resigned, and Mr. Stebbins was reappointed as Commissioner and re-elected as President of the Board. On the 26th of November, 1872, occurred the death of Commissioner Robert J. Dillon. Mr. Richard M. Blatchford was afterwards appointed to fill the vacancy. On the 13th January, 1873, the seat of Commissioner Thomas C. Fields was declared vacant by the Mayor, and filled by the appointment of Mr. Salem H. Wales. On the 30th April following the law known as the Charter of 1873 came into effect, under which the Commission was to be reconstituted by nomination of the Mayor and confirmation by the Board of Aldermen. The new Board was not, however, made complete until the 19th June. It was composed as follows:

HENRY G. STEBBINS, continued in office by Charter.
SALEM H. WALES, reappointed 22d May, 1873—2 years.
PHILIP BISSINGER, appointed 22d May, 1873—4 years.
DAVID B. WILLIAMSON, appointed 12th June, 1873—3 years.
SAMUEL HALL, M.D., appointed 19th June, 1873—1 year.

On the 27th June, 1873, Mr. Henry G. Stebbins was elected President. On the 31st July Mr. Stebbins resigned, and Mr. Salem H. Wales was elected President on the 29th August. On the same day Mr. David B. Williamson was elected Treasurer, and Mr. Henry G. Stebbins Vice-President.

FINANCES.

The financial statement of the Second Annual Report of the Department extended to May, 1872, but did not give the full detail of the expenditures of the last four months. The statement hereto appended applies, therefore, to the period from 1st January, 1872, to 1st January, 1874.

The amount received by the Department, together with the amount of bills, pay-rolls, &c., transmitted to the Comptroller of the City for payment, during the two years, has been $3,967,681.33. Of this sum $19,559.58, received since 1st May, 1873, for licenses, sales, &c., has been deposited with the Chamberlain of the City, and $2,418.38 is still unexpended.

The remainder has been disbursed as follows:

	1872.	1873.
For overdraft at Bank, 31st December, 1871	$71,717 44	....
For Construction, Central Park	828,519 43	$625,653 67
For other Construction purposes	1,205,667 99	255,399 05
For Maintenance, Central Park	319,532 69	329,796 36
For other Maintenance purposes	156,003 97	153,412 77

The distribution of these sums among the various undertakings of the Department is shown in Appendix A.

THE RIVERSIDE AND MORNINGSIDE PARKS.

The most important action of the Department to be recorded is that with reference to the new Riverside and Morningside Parks.

Upon the first no work has been done, but the Department has adopted the conclusion that Riverside Avenue and Riverside Park should be laid out as one undertaking, and that the plans for both should, if possible, be prepared without regard to the present line of division between them. An Act of the Legislature, designed to facilitate this purpose, has been obtained, but further amendment of the existing laws is thought to be expedient before the proposed arrangement can be definitely adopted.

A plan for Morningside Park, of which an engraving and description is appended, has been adopted, and its construction is now in progress, having begun in October, 1873.

THE CENTRAL PARK.

The principal part of the expenditure on the Central Park during the period covered by this report has been in completing, or advancing toward completion, a variety of undertakings previously begun and heretofore described. A general account of all will be found in the subjoined report of the Superintendent, and a more exact account of the work of various kinds done on each in the tabular statement hereto appended.

With the exception of the fountain presently to be described, the most notable of these works which have been in progress is that of the enclosing wall on Eighth avenue, of which 7,700 lineal feet of retaining wall has been built, and 2,800 feet of the parapet wall.

No work of note has been begun which was not previously contemplated, planned and prepared for. The following undertakings have, however, been put under construction on plans previously adopted :

(1.) A system of walks and archways in the southeast part of the Park, a general description of which, and of the grounds on which it was ordered, is given in Appendix J.

(2.) An enlargement of the accommodations near the music-stand of the Mall, made necessary by the increasing numbers of visitors at concerts and the destruction of turf caused by the crowd.

(3.) The construction of a boat-house at the east end of the lake, made necessary by the enlargement of the boating business and the insufficiency of the existing arrangements at the esplanade of the Terrace. The outlay thus far on these works has been :

On the system of walks..............................	$27,852 65
On the enlargement of concert accommodations....	7,144 99
On the boat-house..................................	2,360 92

THE BETHESDA FOUNTAIN.

This important work—originally ordered by the Commissioners of the Park in 1863, as the central ornament of its central feature, the esplanade of the Terrace—was finally set in its place in the Spring of 1873, being first publicly displayed on the 31st May. No ceremony was used on the occasion, but a large band gave appropriate music, and a great multitude of people manifested cordial enjoyment and warm appreciation of the work.

The idea of the fountain was suggested by the well-known passage from the Gospel according to St. John, chap. v, vers. 2, 3 and 4.

> "Now there is at Jerusalem by the sheep market a pool, which is called in the Hebrew tongue Bethesda, having five porches."
>
> "In these lay a great multitude of impotent folk, of blind, halt, withered, waiting for the moving of the water."
>
> "For an angel went down at a certain season into the pool and troubled the water; whosoever then first after the troubling of the water stepped in, was made whole of whatever disease he had."

> "An angel descending to bless the water for healing," says the designer, "seems not inappropriate in connection with a fountain; for, although we have not the sad groups of blind, halt and withered waiting to be healed by the miraculous advent of the angel, we have no less healing, comfort and purification, freely sent to us through the blessed gift of pure, wholesome water, which to all the countless homes of this great city, comes like an angel visitant, not at stated seasons only, but day by day."
>
> "Every day an angel descends for us, and to remind us of this, the golden bronze angel of the fountain stands for ever blessing the waters, which rise and move at her presence. She bears in her left hand a bunch of lilies, emblems of purity, and wears across her breast the crossed bands of the messenger-angel. She seems to hover over, as if just alighting on a mass of rock, from which the water gushes in a natural manner, falling over the edge of the upper basin, slightly veiling, but not concealing, four smaller figures, emblematic of the blessings of Temperance, Purity, Health and Peace."

The model for the figure of the angel, 8 feet in height, the upper bronze basin 10 feet in diameter, and the group of four figures below, 4 feet in height, were designed

and executed in Rome by Miss EMMA STEBBINS, of New York, during the winter of 1864–66 and 67. The models were then sent to Munich and cast in bronze, under the direction of FERDINAND VON MULLER, director of the Royal Bronze Foundry in that city. The substructure of granite and bronze was designed and erected by the Architects of the Department.

THE METEOROLOGICAL OBSERVATORY.

Mr. Draper has been able to still further enlarge and improve the admirable self-registering apparatus of the Observatory, and the results of the constant reports which have been secured will be found appended in the usual tabular form. A highly interesting report of original investigation by Mr. Draper, in regard to the progress of storms between the American and European coasts, is also presented herewith, the conclusions of which promise an addition to our knowledge of great practical value.

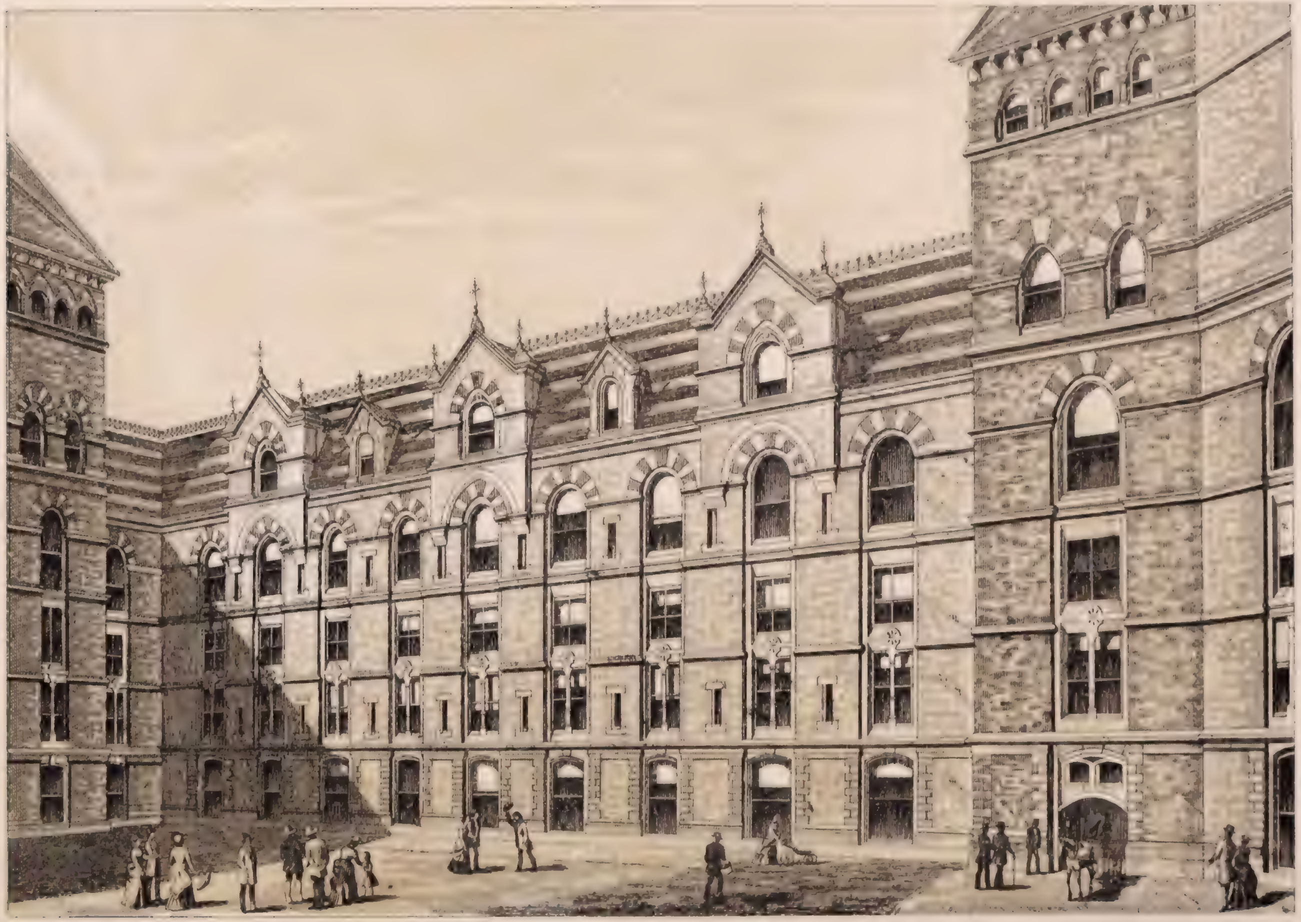
THE ZOOLOGICAL COLLECTION.

The collection of living animals under the care of the Department has increased in number and interest, as will be seen by the report of the Director, which is hereto appended. The number of visitors is estimated to be not less than seven thousand daily on an average.

It is a question of much concern what shall be done with this collection. It is at present housed in temporary structures, inadequate to its proper accommodation, and occupying a situation in which it would be much better no buildings should stand. The Department is reluctant to adopt the plan recommended by its Landscape Architect, in a report appended, of dividing the collection between several localities. There are two alternatives: one is to appropriate to it one of the two meadow grounds of the Central Park, which was the plan adopted in 1871. This involves the sacrifice of the most beautiful, characteristic and useful feature of the Park, and is to be condemned, as it has been, by the enlightened public opinion of the City, on the strongest grounds of taste and true economy. It has, consequently, been rejected, and the construction which had been commenced under the plan of 1871 has been demolished and the ground restored, at considerable expense, to its original condition. The other is to select and acquire a piece of ground especially for and well adapted to the purpose. This could now only be found in the western district of the City, and besides involving a large expenditure for land, would place the collection at an undesirable distance from the centre of population.

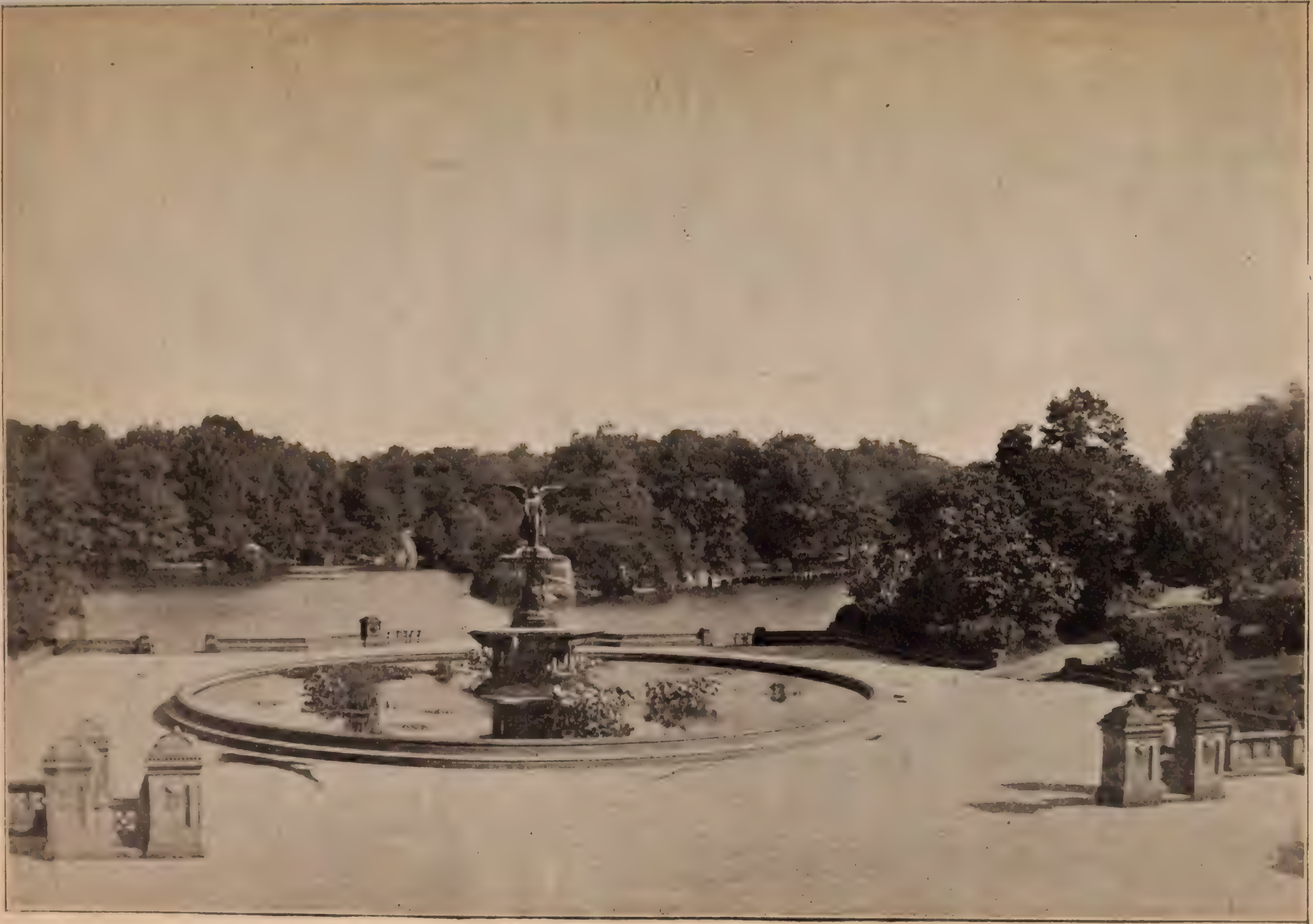
THE AMERICAN MUSEUM OF NATURAL HISTORY.

A building is now under construction for this institution, on the south side of Manhattan square. The plans for it have been prepared by Mr. Calvert Vaux, Architect, approved by the Trustees of the Museum, and adopted by the Board. It will be a fire-proof structure, two hundred feet long and sixty-four feet wide, three stories in height, besides attic, basement and cellar.



AMERICAN MUSEUM OF NATURAL HISTORY.

CENTRAL PARK 8th Ave and 77th Street.



THE FOUNTAIN IN CENTRAL PARK. By A. O. Pierce.

"A CHILDREN'S PORTRAIT STUDY."

By Ernest

"THE ACTINOMETER" IN AMATEUR PHOTOGRAPHY.

W. L. Clarke: "Very little has been published about the use, by amateurs, of these instruments, presumably for the reason that they are not, as a rule, considered to be at all necessary in mastering the first rudiments of photography, and more probably because this class of photographers prefer not to, and seldom do, obtain, at the beginning, much in the way of appliances beyond the necessary camera, and developing and printing outfits. The instrument is, however, to my mind, a necessary adjunct to the smallest outfit, and it should be obtained at the start, for its use not only assists, by giving us correctly exposed negatives of subjects under different lights, but it is also an instructor of the highest order.

"Being an instrument for determining the intensity of light, it will be found to give reliable and correct time for favorable or unfavorable exposures, and, for the low cost at which it can be obtained, no amateur, who desires complete success with his exposures, should be without one.

"Having no such guide at hand, we quite frequently find ourselves in a quandary as to the time a subject requires under varying degrees of light, and we make our exposure, either by guess work or based on former experiences, which too often results in an under or over exposed negative, and which cannot be determined until the dark room is entered, where after a vain endeavor to bring out the detail, if undertimed, or to restrain it, if overtimed, there is no alternative but to consign it to the basket for broken glass.

"In many cases the difference in the actinic value of the light, on the same day, at different points of the subject to be taken, is not perceptible to the naked eye, and, in such a light, one's judgment is not to be entirely depended upon. It is, therefore, es-

The walls, of blue stone laid in cement, are now complete to the basement floor. The upper walls are to be of brick and granite, the floors of iron and brick arches, and the roof of iron and slate.

The mason work is under contract at $127,894; the granite work at $123,305; the iron work at $168,134. The total cost of the building is to be $500,000.

The Society is in a highly flourishing and satisfactory condition, its resources increasing, its collections enlarging, and their great value, as a means of public education, constantly growing more apparent. It has, since our last report, obtained nearly five hundred new subscribers; voluntary contributions of money have been received, to the amount of $26,000, besides gifts to the collections, altogether of great value, from two hundred persons.

THE METROPOLITAN MUSEUM OF ART.

Plans of a building for the Museum of Art, to be situated east of the old reservoir, on territory originally appropriated to the Park, have been prepared by Mr. Vaux, approved by the Trustees of the Museum, and adopted by the Board. A large sewer has been laid with reference to it, and the excavation for the cellar is about one-third made. The foundations will rest on a ledge of rock. Work upon the walls will be begun in the spring. The cost is to be $500,000.

The collections of the Museum have, since the last report of the Department, been removed from the building in

Fifth avenue to that known as the Douglass Mansion, in Fourteenth street, which affords four times as much space available for their exhibition, and is in all respects more convenient and serviceable. The large, clear space about it lessens the danger of loss by fire, and safety is still further assured by a constant patrol, day and night, and by abundant extinguishing apparatus and other well-considered precautions.

The works of art which are the property of the Museum are increasing in number, and are now of the value of about two hundred thousand dollars. Besides these, an exhibition is made of works which are private property, but loaned for the purpose, of nearly equal value. Many precious works of art are thus made available for the instruction of the community. One of the most interesting features of the exhibition is the wonderful collection of archaic art made by General di Cesnola in the island of Cyprus, and which is the property of the President of the Museum, John Taylor Johnston, Esq.

Changes constantly occur through the addition and withdrawal of particular contributions, but the exhibition on the whole remains of undiminished interest, and it is probable that the resources to be drawn upon are so large, constantly increasing as they are, that a loan collection as rich, varied and instructive, may be supported for an indefinite period.

A small admission fee is ordinarily collected from all who are not subscribers, to aid in defraying the large expense of the Museum, but on one day of each week the doors are open without charge. The average number of visitors on free days has been a little short of one thousand, on other days about seventy.

The affairs of the Museum are managed with much enterprise, care and economy; the Trustees personally performing much arduous labor and well earning the hearty gratitude of the community.

PROPOSED APPROPRIATIONS OF GROUND FOR BUILDINGS, STATUES AND OTHER OBJECTS.

The value of the Central Park lies chiefly in the opportunity which it is expected to afford of a quiet rural retreat from the city, which shall still be near at hand to most of its inhabitants when their number shall be much larger than at present. Its important elements in this respect are the spaces of open turf ground, the trees bordering them, and the subordination of artificial objects to general rural effects in its landscapes.

There is a constant demand from persons who do not appreciate the value of the Park in this respect, or who do not realize the conditions on which it is dependent, for the introduction of objects upon it or the appropriation of small portions of its territory for what are deemed to be, and in most cases justly, desirable public purposes, but of which the effect would be an injury in greater or less degree with reference to its paramount purpose. Objects have already been admitted which, in the judgment of the present Board, would have better been excluded, and it has invariably declined, and is disposed to persistently decline, to appropriate any part of the ground to purposes not already provided for. A limited number of really choice works of art may be introduced, if caution and good judgment is used in placing them, but should they be generally scattered through the Park, or occupy prominent positions in its general landscapes, there can be no doubt that they would greatly detract from its value as a place of rural recreation.

In view of the increasingly numerous propositions to place sculptural works on the Park, and of applications in advance for an assignment of special sites for them, the Board, early in the spring of 1873, gave full consideration to the subject, the result of which was the adoption of a series of rules governing the question of the acceptance and disposition of statues which may hereafter be offered to it. These rules were established with the purpose of guarding against the acceptance of works of inferior quality and also to secure the subordination of such as should be accepted to the motives of the general design. The rules adopted provide, accordingly, that every statue shall have the judgment, as to its merit as a work of art, of the respective Presidents of the National Academy of Design, the Metropolitan Museum of Art and the New York Chapter of the American Institute of Architects; that the site of a statue shall not be determined before its acceptance; that portrait or commemorative statues shall be placed only along the Mall and near the entrances, sculptured works of art of dramatic or poetic interest being allowed at other points where they will not interfere with the views on the Park, and that no statue commemorative of any person shall be accepted until after a period of five years from the death of such person.

THE COST OF THE CENTRAL PARK.

At the close of the year 1873 the Central Park had cost the City $13,902,515.60, of which $5,028,844.10 was for the land and $8,873,671.50 for its improvement. The expenditures for construction since the date of the financial statement of the last report (May 1, 1872), a period of twenty months, having been $1,453,892.10.

The successive annual valuations, since 1856, of the real estate in the three wards adjoining the Park, made by the Commissioners of Taxes and Assessments, are shown in the following table :

The growth of the city would occasion a natural increase of valuation in these three wards, equal perhaps to the average increase in the other wards of the City, which may be roundly stated as 100 per cent. in the period (1856 to 1873). At this rate these three wards would now have a valuation of about $53,000,000 ; but their valuation for 1873, as appears from the table, is $236,000,000. The great increase thus shown ($183,000,000) is the immediate result of the expenditures which have been made upon the Central Park, some proportion, since the year 1868, however, being due to the construction of the Boulevards and other improvements in the upper wards of the city.

WARD.	1856.	1857.	1858.	1859.	1860.	1861.
Twelfth...........	$8,149,360	$8,134,013	$8,476,890	$10,062,725	$11,857,114	$12,454,375
Nineteenth........	8,041,183	8,558,624	10,971,775	12,621,894	16,830,472	16,986,152
Twenty-second....	10,239,022	10,489,454	11,563,506	13,261,025	14,775,440	17,666,866
Total.........	$26,429,565	$27,182,091	$31,012,171	$35,945,644	$43,463,026	$47,107,393

WARD.	1862.	1863.	1864.	1865.	1866.	1867.
Twelfth...........	$13,100,385	$14,134,825	$15,493,575	$18,134,805	$18,381,650	$24,940,737
Nineteenth........	17,903,137	19,003,452	20,462,607	23,070,890	37,636,050	46,249,340
Twenty-second....	18,041,857	18,281,222	18,756,276	19,824,265	24,052,715	30,915,240
Total.........	$49,045,379	$51,419,499	$54,712,458	$61,029,960	$80,070,415	$102,105,317

WARD.	1868.	1869.	1870.	1871.	1872	1873.
Twelfth...........	$28,143,005	$42,648,865	$48,869,700	$50,362,925	$54,568,885	$62,457,680
Nineteenth........	53,608,040	59,912,633	71,319,420	77,771,930	91,283,545	110,519,305
Twenty-second....	36,175,185	47,663,245	53,146,920	57,666,340	60,185,820	63,104,530
Total.........	$117,926,230	$150,224,743	$173,336,040	$185,801,195	$206,038,250	$236,081,515

Assessed value in 1873..	$236,081,515 00
" " 1856..	26,429,565 00
Showing an increase of valuation of..	$209,651,950 00

The rate of tax for the year 1873 is 2.50, yielding on the increase of valuation as above stated, an increase of tax amounting to $5,241,298.75.

The total expenditure for construction, from May 1st, 1857, to January 1st, 1874, is		$8,873,671 50
The cost of land of the Park to the city is		5,028,844 10
Total cost of the Park to the city		$13,902,515 06
Total increase of tax in three wards		$5,241,298 75
The annual interest on the cost of the land and improvement of the Park up to this time, at six per cent	$834,150 94	
Deduct one per cent. on $399,300 of stock, issued at five per cent	3,993 00	
		830,157 94
Excess of increase of tax, in three wards, over interest on cost of land and improvements		$4,411,140 81

THE SMALL PARKS.

Besides the Central, Riverside and Morningside Parks and the Parade-ground, there are on the island of New York, and under the charge of the Department, twenty-six smaller grounds, mostly designated parks; they are named, the location of each indicated, and its area stated in Appendix L.

Of the expenditure on the small parks, nearly all has been given to the carrying forward of work begun under the administration of 1871, except that for drinking-fountains and that applied to the improvement of Union square.

Drinking-fountains of an original design have been placed as follows: four on the City Hall park, one on Washington square, two on Union square, and two on Madison square.

A stone drinking-trough has also been set north of the Worth Monument, between Broadway and Fifth avenue.

Changes in the plan of Union square, which have since been carried out, were described in the last report, except that which has resulted in the place called

THE MUSTER-GROUND.

The object of this ground is to meet the public requirement of mass-meetings, which had previously led to the frequent erection of temporary stagings, booths, tents, flags, staffs and lighting apparatus, of a character inconvenient, unseemly and dangerous, on the southeast part of the square. The crowds attending these meetings were liable to cause a complete interruption of the most important lines of public communication through the city, and when this was avoided, the movement of vehicles in the rear and in the flanks of the assemblage, was a source of much disturbance and turbulence.

Twenty thousand persons can stand in the new ground without interrupting or being incommoded by the street cars and omnibuses. Walls of solid stone support the platform, and guard the Park and adjoining wooden constructions from injury through any excited pressure of a crowd toward them. The whole space may be fully illuminated by substantial fixtures. The arrangements are adapted to allow a military column or other procession passing the platform to be reviewed from it by any guest of the city, or other personage to be honored. In such cases, as abundant opportunities will have been given the spectators to view the procession elsewhere on the line of march, it will be unnecessary that large special accommodations for them shall be provided on the square. The lack of space for the execution of manœuvres in the Muster-ground itself and for large bodies of spectators on its borders, renders it unfit to be used as a parade or military exercise ground, for which, consequently, the arrangements are not designed.

PARADE-GROUND.

Under the requirements of an Act of the Legislature of 1871, a plot of ground, 81 acres in extent, has been selected for a Parade-ground by the Commissioners of the Department, acting in connection with the Major-General commanding the First Division, National Guard.

The need of an open space of ground for the exercise of the Militia and the massing of troops at the City of New York, or for other purposes requiring the assembling of great numbers of people and for which the streets are not suitable, has been long recognized.

As early as 1807, a field of 250 acres was selected for the purpose, and legislation was had with a view to its purchase. Since then, few years have passed without some act of the Common Council or the Legislature looking to the same end, and six several pieces of ground have been actually designated as the parade-ground of the City. Strong and effective opposition has been developed, however, to each project, and each in its turn has eventually been defeated, unless the little dreary waste of Tompkins square, which still remains under military control, is to be considered an exception. The opposition has been based in each case on the objection in behalf of the tax-paying interest, that too valuable ground was to be taken; or, on behalf of some members of the military force, that the ground selected was too far away from them; or lastly, on behalf of property holders in the neighborhood of the ground, who, after it had been acquired by the City wished to have it improved as a park instead of a parade-ground.

The ground now selected was, at the time it was chosen, understood by the Commissioners responsible in the matter, to be of less value in the market than any other which could be taken, and to be so situated that its use, as proposed, would greatly increase the taxable valuation of adjoining property, and ultimately add little or nothing to the weight of general taxation upon the City. It was accessible by steam railroads on two sides, and by steamboats from both the North and East rivers. No ground, therefore, in their judgment, could be more conveniently reached from all parts of the City, and none could be found materially nearer to the centre of population, the market value of which did not place it out of question.

THE TOMPKINS PARADE-GROUND.

The City undertook, through the Street Department, under Mr. Tweed's administration, to cover all of this ground, except a narrow border,, with a bituminous concrete pavement. About two-thirds of it was covered with a worthless composition for the purpose, which has since been gradually disintegrating and scaling up. The remainder was left bare. The whole is now in disorder, and the ground is unfit for any desirable purpose. The Commission has not been willing to immediately undertake its general improvement, which could only be accomplished at a considerable cost, but has ordered a replanting of the border strips with a view to relieve in some degree its forlorn appearance, and to make it of some little use for the recreation of the adjoining dense population.

THE STREET SYSTEM OF THE NORTH END OF THE ISLAND.

Plans have been perfected and adopted and maps filed for two and a quarter miles of additional streets, generally eighty feet in width, and surveys have been made for others on application of property holders. The work remaining to be done is not large in amount, all contemplated improvements having been surveyed or so nearly developed as to determine their extent. Its completion has been delayed by the exhaustion of funds applicable to the purpose.

THE IMPROVEMENT OF HARLEM RIVER.

The surveys in progress on the Harlem river were suspended early in the last year for want of funds, the law requiring that these should be obtained by concurrent action of the authorities of Westchester county with the Department, which was not effected. Under the Act of Annexation, taking effect January 1st, 1874, the work becomes a purely municipal one. The Board is strongly impressed with its importance and is disposed to complete the surveys and plans of improvement as soon as funds shall be provided. It is especially desirable that the proposed tunnel under the river, on the line of Seventh avenue, should be speedily undertaken, as otherwise the reconstruction of the McComb's Dam Bridge may become necessary before it can be finished.

The general character of the proposed improvements of the river and of the communications which will be needed between the two parts of the city which it separates, by means of bridges and tunnels, is indicated in the Report of the Engineer in charge, which is appended. Statistics are also presented which illustrate the importance of the subject.

THE SURVEY AND LAYING OUT OF THE WESTCHESTER DISTRICT.

The topographical survey of the Westchester district, which was commenced in 1869, has been completed. This survey is the basis of the work of laying out a system of streets, avenues, and other improvements in that territory.

in accordance with the several acts of the Legislature which have been passed upon the subject. The expense of the work has been defrayed, except a balance yet unliquidated, by the several towns in Westchester county included in the survey.

Besides the topographical survey, a large amount of work has been done in preparing plans for laying out streets and avenues, and four and a half miles of streets and avenues have been adopted by the Board and the maps thereof filed.

The Annexation Act, by which this large and valuable territory will become a part of the City and County of New York, changes the relations hitherto existing of the Department towards it, and all future proceedings, with regard to its improvement and development, will be taken under municipal laws and at the general expense of the city.

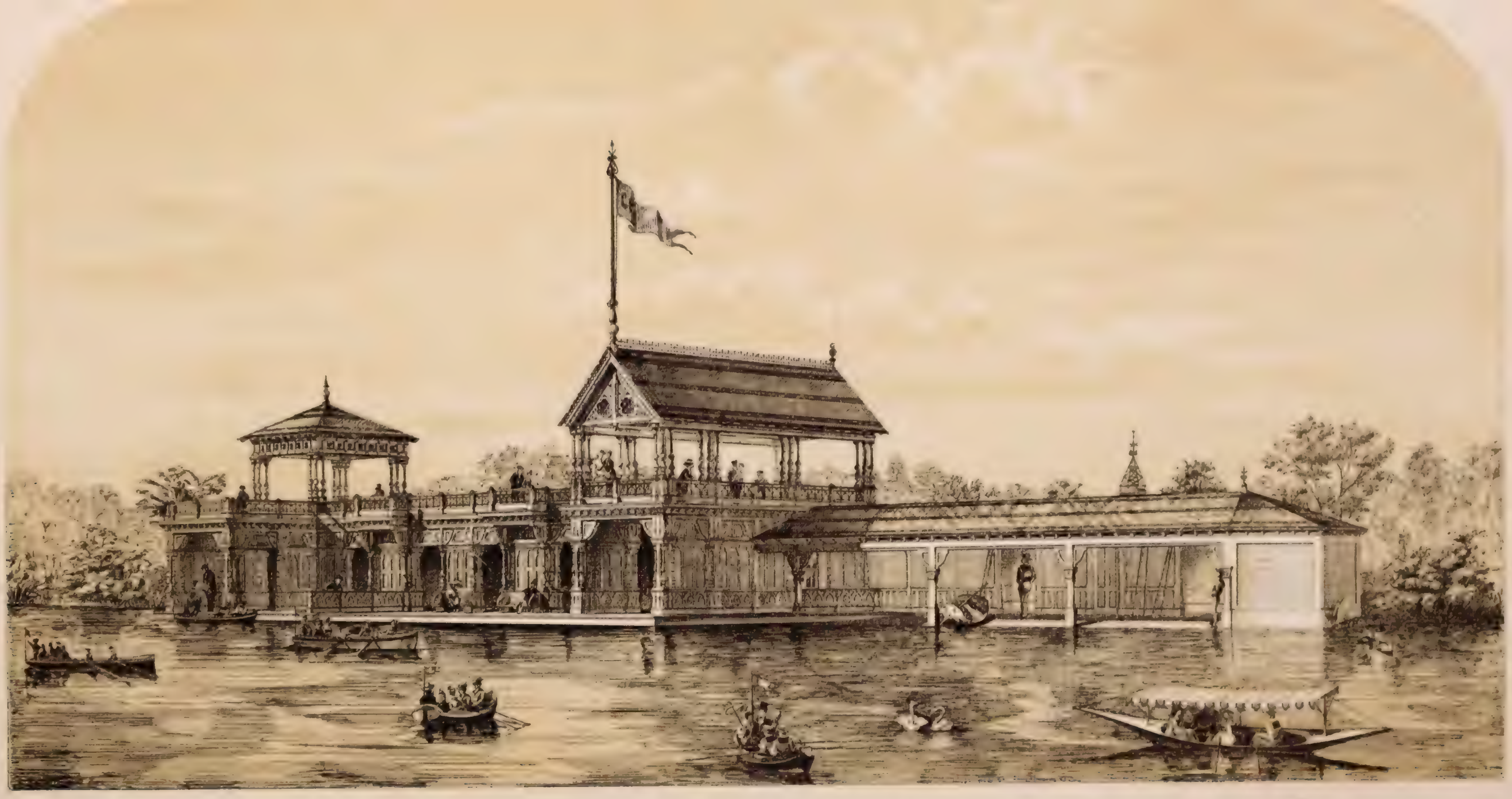
Owing to the provisions of the law heretofore existing, the laying out and opening of streets and roads by the local authorities have not been permitted during the progress of the surveys, except such as were provided for by special laws, and this has checked improvements which were needed and which would otherwise have been prosecuted ; it seems, therefore, incumbent upon the municipal government to advance the work hereafter as fast as can be prudently done, and to manifest a liberal policy towards its new citizens, who have surrendered their local privileges by annexation and merged their future interests into those of the metropolis.

A complete topographical map of the Westchester district of the city is appended.

Respectfully,

SALEM H. WALES,
President, D. P. P.

WM. IRWIN,
Secretary, D. P. P.



THE BOAT HOUSE

APPENDIX A.

FINANCIAL STATEMENTS.

I. For 1872.

II. For 1873.

FINANCIAL STATEMENTS.

I.

STATEMENT

Showing Receipts and Expenditures during the year 1872.

SUMMARY.

The total receipts for the year ending December 31st, 1872, were	$2,614,004 68

To balance, December 31st, 1871 (overdraft on Tenth National Bank)	$71,717 44	
The total expenditures for the year ending December 31st, 1872, were	2,509,724 08	
Balance December 31st, 1872	32,563 16	
		$2,614,004 68

RECEIPTS AND DISBURSEMENTS.

CENTRAL PARK CONSTRUCTION ACCOUNT.

The total receipts for the year ending December 31st, 1872, were as follows:

From the issue of stock by the City of New York	$950,000 00
From the Scott Monument Association for labor furnished	300 00
	$950,300 00

To balance, December 31st, 1871		$94,141 85

The expenditures during the year 1872 were as follows:

Salaries of officers, clerks, engineers, &c	$42,130 39	
Labor paid—Foremen, laborers, mechanics, carts, &c	454,588 82	
Materials of construction, tools, contract work, &c	323,671 36	
Stationery, printing and drawing materials	2,893 50	
Incidental expenses	5,235 36	
		828,519 43
Balance, December 31st, 1872		27,638 72
		$950,300 00

The total receipts on this account from May 1st, 1857, to December 31st, 1872, were as follows:

From the issue of stock by the City of New York	$8,227,297 48	
From other sources	48,653 07	
		$8,275,956 55

The total expenditures on this account, from May 1st, 1857, to December 31st, 1872, were	$8,248,317 83	
Balance, December 31st, 1872	27,638 72	
		$8,275,956 55

MAINTENANCE ACCOUNT, 1872.

The receipts on this account during the year 1872 were as follows:

Received from the City of New York, for maintenance account	$425,000 00	
" from license to sell refreshments	6,600 50	
" from license to run boats	1,000 00	
" from license to run park carriages	500 00	
" from license to run Novelty carriages	56 45	
" from license to keep bath-house at Battery	300 00	
" from license to sell photographs	91 26	
" from license to run Carrousel	1,456 85	
" from sale of grass	3,082 00	
" from pound on Central Park	231 75	
" from sale of old material	2,863 54	
" from interest on deposits	414 86	
" sale of sheep and sheep-skins	1,492 34	
" sale of animals	100 62	
" for gas used at Mt. St. Vincent building	429 90	
" for removing broken vehicles	26 00	
By balance	31,890 59	
		$475,536 66

ERRATUM.

In place of the 24th line on page 29, read:

	LABOR.	MATERIALS.	TOTALS.
Park and Gate-keepers' wages and uniforms.......	$94,400 18	$1,642 92	$96,043 10

The expenditures on this account, during the year 1872, were as follows:

CENTRAL PARK MAINTENANCE.

	LABOR.	MATERIALS.	TOTALS.	
Roads—Cleaning	$34,420 75	$1,244 18	$35,664 93	
Roads—Repairing	5,291 81	10,187 73	15,479 54	
Bridle roads—Cleaning	2,175 98	6 30	2,182 28	
Bridle roads—Repairing	210 44	43 40	253 84	
Walks—Cleaning	15,857 33	737 27	16,594 60	
Walks—Repairing	5,752 50	1,355 00	7,107 50	
Plantations	14,510 33	1,867 70	16,378 03	
Turf	19,734 18	1,363 02	21,097 20	
Water	980 49	854 27	1,834 76	
Ice	17,051 82	2,690 90	19,742 72	
Irrigation	1,307 75	48 77	1,356 52	
Transverse roads	696 45	75 25	771 70	
Masonry and bridges	274 72	93 12	367 84	
Tools	6,158 42	302 21	6,460 63	
Surface drainage	338 41	64 80	403 21	
Buildings	20,292 56	4,528 79	24,821 35	
Lighting Park	27 43	2,219 79	2,247 22	
Manure	2,175 67		2,175 67	
Park and gate-keepers' wages and uniforms	241,657 22	29,325 42	270,982 64	
Special park-keepers	5,876 57		5,876 57	
Music	6,083 00		6,083 00	
Stationery and printing		763 20	763 20	
Seats, signs, &c	1,399 60	791 79	2,191 39	
Earth closets		13 25	13 25	
Miscellaneous	9,394 83	6,362 22	15,757 05	
Incidental expenses		4,865 59	4,865 59	
Proportion of salaries	13,000 00		13,000 00	
	$277,411 22	$42,121 47		$319,532 69

MAINTENANCE, MUSEUM AND OBSERVATORY.

Museum	$12,853 52	
Gallery of Art	1,464 92	
Meteorological Department	3,265 15	
Care and keep of animals	31,082 66	
Purchase of animals	296 30	
Salaries, stationery, printing, &c	2,337 75	
		$51,300 30

CITY PARKS AND PLACES, MAINTENANCE.

Labor—paid foremen, laborers, gardeners, &c	$46,560 78	
Tools and materials	3,076 76	
Proportion of salaries	3,500 00	
Park-keepers' wages and uniforms	20,138 62	
Music	7,015 00	
Incidental expenses	634 88	
		80,926 04
Carried forward		$451,759 03

Brought forward			$451,759 03

ROADS AND AVENUES, MAINTENANCE.

Labor—paid foremen, laborers, carts, &c	$16,879 48		
Proportion of salaries, &c	2,966 59		
Materials	705 00		
		$20,551 07	

MAINTENANCE OF BRIDGES.

Labor—paid foremen, laborers, &c	$331 31		
Materials	174 97		
Salaries of officers, clerks, &c	516 48		
Keeper of draw, McComb's Draw Bridge	1,008 32		
Keepers of draw, Harlem Bridge	1,195 48		
		3,226 56	
			$475,536 66

CONSTRUCTION OF MUSEUM AND OBSERVATORY.

To balance December 31st, 1871	$14,470 77	
The expenditures on this account during the year 1871 were as follows :		
Incidental expenses, pay of officers, &c	878 50	
Animal buildings, cages, &c	3,003 08	
Meteorological Observatory	24 69	
		$18,377 04
To balance, December 31st, 1872		$18,377 04

MAINTENANCE, CENTRAL PARK, 1871.

To balance, December 31st, 1871	$263,394 67	
Received from the city of New York during the year ending December 31st, 1872, for account maintenance 1871	76,577 25	
		$186,817 42
To balance December 31st, 1872		$186,817 42

MAINTENANCE PARKS AND PLACES, 1871.

To balance, December 31st, 1871	$106,276 54

MAINTENANCE MUSEUM AND OBSERVATORY.

To balance, December 31st, 1871	$43,869 74

MAINTENANCE ROADS AND AVENUES.

To balance, December 31st, 1871	$24 766 06

PARKS AND PLACES, IMPROVEMENT OF.

Balance, December 31st, 1871	$64,549 59	
Received from the City of New York, by the issue of stock, from January 1st to December 31st, 1872	450,000 00	
		$514,549 59

The expenditures on this account during the year ending December 31st, 1872, were as follows: ✓

City Hall Park. ✓		
Pay of foremen, laborers, teams, carts, &c	$4,112 53	
Materials of construction and tools	3,334 40	
Surveys, engineers, &c	54 75	
Stone for fountain	8,500 00	
Lamps	6 25	
		$16,007 93
Battery. ✓		
Pay of foremen, laborers, teams, carts, &c	$1,891 32	
Materials of construction and tools	7,494 83	
Surveys, engineers, &c	645 41	
Sea-wall and boat-basin	55,045 88	
Ladies' cottage	3,237 00	
Paving walks, &c	26,820 00	
Tree guards	161 50	
		95,295 94
Madison Square. ✓		
Pay of foremen, laborers, teams, carts, &c	$3,177 85	
Materials of construction and tools	1,461 43	
Surveys, engineers, &c	1,863 19	
Lamps	217 75	
Curb	1,213 62	
Paving walks	35,053 00	
Settees	4,446 86	
Tree guards	712 50	
		48,146 20
Park Avenue Parks. ✓		
Pay of foremen, laborers, teams, carts, &c	$449 82	
Materials of construction and tools	295 20	
Railing, coping, &c	4,205 00	
Surveys, engineers, &c	14 60	
		4,964 62
Union Square. ✓		
Pay of foremen, laborers, teams, carts, &c	$25,474 08	
Materials of construction and tools	5,313 97	
Surveys, engineers, &c	3,184 18	
Cottage	3,648 00	
Paving walks and streets around Park	4,761 90	
Tree guards	589 00	
		42,971 13
Carried forward		$207,385 82

Brought forward		$207,385 82
Reservoir Square.		
Pay of foremen, laborers, teams, carts, &c	$249 65	
Materials of construction and tools	3,106 37	
Surveys, engineers, &c	373 78	
Urinal	1,550 00	
Paving walks	1,949 96	
Tree guards	437 00	
		7,666 76
Tompkins Square.		
Pay of foremen, laborers, teams, carts, &c	$98 30	
Materials of construction and tools	2,257 00	
Surveys, engineers, &c	11 51	
		2,366 81
Mt. Morris Square.		
Pay of foremen, laborers, teams, carts, &c	$13,340 57	
Materials of construction and tools	1,051 16	
Surveys, engineers, &c	685 74	
Trees and plants	475 35	
Paving walks	21,689 94	
		37,242 76
Washington Square.		
Pay of foremen, laborers, teams, carts, &c	$4,713 20	
Materials of construction and tools	7,560 55	
Surveys, engineers, &c	661 08	
Paving walks, &c	4,606 04	
Cottage and tool-house	6,161 30	
		23,702 17
Canal Street Park.		
Pay of foremen, laborers, teams, carts, &c	$13 68	
Materials of construction and tools	10 00	
		23 68
Riverside Park.		
Pay of foremen, laborers, teams, carts, &c	$3 16	
Materials of construction and tools	72 95	
Surveys, engineers, &c	4,234 52	
		4,310 63
Circle, Fifty-ninth Street and Eighth Avenue.		
Pay of foremen, laborers, teams, carts, &c	$196 10	
Materials of construction and tools	754 61	
		950 71
Plaza, Fifty-ninth Street and Fifth Avenue.		
Pay of foremen, laborers, teams, carts, &c	$2,874 55	
Materials of construction and tools	805 60	
Lamps	63 25	
		2,874 45
Carried forward		$286,523 79

Brought forward		$286,523 79

Worth Monument.

Materials of construction and tools	$688 12	
Surveys, engineers, &c	169 04	
Curb	1,056 11	
Pavement	2,447 13	
		4,360 40

Fort Washington Park.

Materials of construction		19 01

Cooper Park.

Pay of foremen, laborers, teams, carts, &c	$33 32	
Materials of construction and tools	17 30	
		50 62

Abingdon Square.

Materials of construction		14 00

Christopher Street Park.

Materials		14 00

Jackson Square.

Pay of foremen, laborers, teams, carts, &c	$276 88	
Railing	500 00	
Lamps	43 50	
		820 38

Grand Street Park.

Pay of foremen, laborers, teams, carts, &c	$14 31	
Materials, &c	541 47	
		555 78

High Bridge Park.

Pay of foremen, laborers, &c	$4 00	
Surveys, engineers, &c	2,544 61	
		2,548 61

Morningside Park.

Pay of foremen, laborers, teams, carts, &c	$6 72	
Materials and tools	21 10	
Surveys, engineers, &c	40 36	
		68 18

Stuyvesant Square.

Pay of foremen, laborers, teams, carts, &c	$6,687 60	
Materials and tools	526 33	
Surveys, engineers, &c	6 94	
		7,220 87
Carried forward		$302,195 64

Brought forward		$302,195 64

Sixth Avenue Park. ✓

Pay of foremen, laborers, teams, &c	$33 12	
Materials	63 19	
		96 31

Duane Street Park. ✓

Pay of foremen, laborers, teams, carts, &c	$22 75	
Materials	7 50	
		30 25

Beach Street Park. ✓

Pay of foremen, laborers, &c	$21 47	
Materials	5 00	
		26 47

Bowling Green. ✓

Pay of foremen, laborers, &c	$15 63	
Materials	26 05	
		41 68

Five Points Park. ✓

Surveys, engineers, &c		54 24

Sixty-third Street Park. ✓

Pay of foremen, laborers, &c	$215 96	
Surveys, engineers, &c	141 00	
		356 96

Sixty-sixth Street Park. ✓

Surveys, engineers, &c		23 52

Miscellaneous.

Proportion of salaries	$22,000 00	
Incidental expenses	3,097 33	
		25,097 33
Balance, December 31st, 1872		$186,627 19
		$514,549 59

ISLAND ABOVE 155TH STREET. ✓

Balance, December 31st, 1871	$2,737 29	
By balance, December 31st, 1872	3,807 11	
		$6,544 40

The expenditures on this account, from January 1st to December 31st, 1872, were as follows:

Surveys, engineers, &c	$6,314 64	
Materials	147 61	
Incidental expenses	82 15	
		$6,544 40

WEST SIDE IMPROVEMENT.

Balance, December 31st, 1871	$1,963 68

EAST SIDE IMPROVEMENT.

To balance, December 31st, 1871	$4,097 29
The expenditures on this account, from January 1st to December 31st, 1872, have been as follows:	
Surveys, engineers, &c	39 59
To balance, December 31st, 1872	$4,136 88

NINTH AVENUE.

Balance, December 31st, 1871	$10,000 00

BROADWAY WIDENING, FROM 34TH TO 59TH STREET.

Balance, December 31st, 1871	$1,218 00

ADAPTING WEST LINE OF PARK TO NEW GRADE OF 8TH AVENUE.

Balance, December 31st, 1871	$2,165 47

HARLEM RIVER, SPUYTEN DUYVIL IMPROVEMENT.

The receipts on this account, during the year ending December 31st, 1872, were as follows:			
From sales of old timber, Kingsbridge		$10 00	
By balance, December 31st, 1872		29,673 52	
			$29,683 52
To balance, December 31st, 1871		$10,216 81	
The expenditures on this account, from January 1st to December 31st, 1872, were as follows:			
Surveys, soundings, &c	$6,842 72		
Materials, tools, &c	77 48		
Incidental expenses and stationery	188 74		
Proportion of salaries	1,250 00		
		8,358 94	
McComb's Dam Bridge.			
Pay of foremen, laborers, mechanics, &c	$1,543 76		
Materials, tools, &c	1,362 11		
Lamps	23 00		
Incidental expenses	230 47		
		3,159 34	
Harlem Bridge.			
Pay of foremen, laborers, mechanics, &c	$248 59		
Materials, &c	3,031 76		
Painting bridge	1,100 00		
Incidental expenses	8 40		
		4,388 79	
Brought forward		$26,123 88	

Carried forward		$26,123 88	
Fordham Bridge.			
Materials, &c		390 00	
King's Bridge.			
Pay of foremen, mechanics, &c	$1 68		
Materials, &c	4 64		
		6 32	
Tunnel.			
Surveys, soundings, &c	$1,478 40		
Incidental expenses	21 91		
		1,500 31	
Suspension Bridge.			
Surveys, soundings, &c	$1,510 78		
Materials, &c	144 15		
Incidental expenses	8 08		
		1,663 01	
			$29,683 52

BOULEVARD, FROM 59TH STREET TO 155TH STREET.

By balance, December 31st, 1871	$65,886 10	
The receipts on this account, during the year ending December 31st, 1872, were as follows:		
From the City of New York	125,000 00	
From sale of old tree	2 00	
By balance, December 31st, 1872	68,892 23	
		$259,780 33

The expenditures on this account, during the year ending December 31st, 1872, were as follows:		
Pay of foremen, laborers, teams, carts, &c	$148,866 84	
Tools, materials of construction, &c	49,130 24	
Surveys, engineers, &c	1,308 49	
Stone-breakers gangs	17,140 10	
Curb, flagging, &c	32,626 92	
Lamps	819 87	
Incidental expenses	1,387 87	
Proportion of salaries	8,000 00	
Stationery and printing	500 00	
		$259,780 33

SIXTH AVENUE, FROM CENTRAL PARK TO HARLEM RIVER.

Balance, December 31st, 1871		$42,512 89

The expenditures on this account, during the year ending December 31st, 1872, were as follows:		
Surveys, engineers, &c	$2,121 35	
Lamp-posts	1,475 00	
Materials	630 01	
Salaries, incidental expenses, &c	145 00	
Balance, December 31st, 1872	38,141 53	
		$42,512 89

SEVENTH AVENUE, FROM CENTRAL PARK TO HARLEM RIVER.

The receipts on this account, during the year ending December 31st, 1872, were as follows:

From the City of New York	$175,000 00	
From the sale of old roller wheels	54 36	
		$175,054 36

To balance, December 31st, 1871	$42 47	

The expenditures on this account, during the year ending December 31st, 1872, were as follows:

Pay of foremen, laborers, teams, carts, &c	25,457 51	
Materials of construction and tools	46,182 25	
Surveys, engineers, &c	1,626 61	
J. H. Sullivan, contractor	71,370 50	
Stationery and printing	300 00	
Proportion of salaries	4,500 00	
Incidental expenses	650 00	
Balance, December 31st, 1872	24,925 02	
		$175,054 36

AVENUE ST. NICHOLAS.

By balance, December 31st, 1871	$96,399 46	

The receipts on this account, from January 1st to December 31st, 1872, were as follows:

From the City of New York	135,000 00	
From filling excavated, and used on other works	39,562 50	
		$270,961 96

The expenditures on this account, during the year ending December 31st, 1872, were as follows:

Pay of foremen, laborers, teams, carts, &c	$17,722 74	
Materials of construction and tools	16,881 38	
Surveys, engineers, &c	2,341 81	
J. P. Cumming, Jr., contractor, grading	21,528 40	
Curb and flagging	22,060 86	
Proportion of salaries	2,500 00	
Incidental expenses and printing	500 00	
Balance, December 31st, 1872	187,426 77	
		$270,961 96

GRADING 8TH AVENUE, FROM 77TH STREET TO 81ST STREET.

By balance, December 31st, 1871	$122,106 31	

The expenditures on this account, during the year ending December 31st, 1872, were as follows:

Pay of foremen, laborers, teams, carts, &c	22,775 36	
Materials	2 50	
Pay of engineers, officers, clerks, &c., and incidental expenses	1,229 00	
Balance, December 31st, 1872	98,099 45	
		$122,106 31

TENTH AVENUE, FROM 155TH STREET TO HARLEM RIVER.

By balance, December 31st, 1871	$65,445 59	
The receipts on this account, during the year ending December 31st, 1872, were as follows :		
From the City of New York	100,000 00	
From sale of old wood	4 00	
By balance, December 31st, 1872	43,088 35	
		$208,537 94

The expenditures on this account, during the year ending December 31st, 1872, were as follows :		
Pay of foremen, laborers, teams, carts, &c	$192,351 21	
Materials of construction and tools	6,715 70	
Surveys, engineers, &c	1,871 03	
Salaries of officers, clerks, &c., and incidental expenses	7,250 00	
Stationery and printing	350 00	
		$208,537 94

MORNINGSIDE AVENUE.

To balance, December 31st, 1871	$1,571 39	
Expenditure	85 27	
		$1,656 66

AVENUE AT BASE OF MORNINGSIDE PARK.

To balance, December 31st, 1871	$214 08	
The expenditures on this account, during the year ending December 31st, 1872, were as follows :		
Materials of construction, &c	1,980 00	
		$2,194 08

MANHATTAN STREET.

By balance, December 31st, 1871	$57,995 83	
Received from the City of New York on this account, during the year ending December 31st, 1872	100,000 00	
		$157,995 83

The expenditures on this account, during the year ending December 31st, 1872, were as follows :		
Pay of foremen, laborers, teams, carts, &c	$1,894 30	
Materials of construction and tools	14,826 90	
Surveys, engineers, &c	697 73	
J. H. Sullivan, contractor	69,600 00	
Salaries of officers, clerks, &c	2,500 00	
Incidental expenses, stationery and printing	575 00	
Curb	9,154 33	
Balance, December 31st, 1872	58,747 57	
		$157,995 83

ONE HUNDRED AND FORTY-FIFTH STREET.

Received from the City of New York during the year ending December 31st, 1872.		$35,000 00

To balance, December 31st, 1871	$27,653 24	
The expenditures on this account, during the year ending December 31st, 1872, were as follows :		
Surveys, &c	$48 00	
Lamp-posts	275 00	
Balance, December 31st, 1872	7,023 76	
		$35,000 00

FIREWORKS, JULY 4TH, 1872.

Received from the City of New York for fireworks on the City Parks for July 4th, 1872		$8,911 00

Expended for fireworks July 4th, 1872	$8,903 00	
Balance, December 31st, 1872	8 00	
		$8,911 00

WESTCHESTER COUNTY, TOWN OF WEST FARMS.

Received from the Treasurer of Westchester County, during the year ending December 31st, 1872	$6,000 00	
By balance	18,315 30	
		$24,315 30

To balance, December 31st, 1871	$9,801 77	
The expenditures on this account, during the year ending December 31st, 1872, were as follows :		
Surveys, engineers, &c	11,579 12	
Materials	120 20	
Officers, clerks, &c.	2,425 00	
Incidental expenses	389 21	
		$24,315 30

WESTCHESTER COUNTY, TOWN OF YONKERS.

Received from the Treasurer of Westchester County, during the year ending December 31st, 1872	$8,200 00	
By balance	8,609 50	
		$16,809 50

To balance, December 31st, 1871	$4,180 97	
The expenditures on this account, during the year ending December 31st, 1872, were as follows :		
Surveys, engineers, &c	$10,375 19	
Officers, clerks, &c	2,075 00	
Incidental expenses	178 34	
		$16,809 50

ONE HUNDRED AND FIFTY-FIFTH STREET.

The expenditures on this account, during the year ending December 31st, 1872, were as follows:

Surveys, engineers, &c $1,541 14

PARADE GROUND.

The expenditures on this account, during the year ending December 31st, 1872, were $163 00

AMERICAN MUSEUM OF ART.

The expenditures on this account, during the year ending December 31st, 1872, were $1,312 99

AMERICAN MUSEUM OF NATURAL HISTORY.

The expenditures on this account, during the year ending December 31st, 1872, were as follows:

Pay of foremen, laborers, mechanics, &c	$13,133 75	
Materials of construction, &c	1,519 69	
Pay of officers, clerks, draughtsmen, &c	1,268 91	
Incidental expenses	111 50	
		$16,033 85

RECAPITULATION.

Balance, December 31st, 1872—Construction Central Park	$27,638 72
" Parks and Places	186,627 19
West Side improvement	1,963 68
Ninth Avenue	10,000 00
Broadway widening	1,218 00
Adapting west line of Park	2,165 47
Sixth Avenue	38,141 53
Seventh Avenue	24,925 02
Avenue St. Nicholas	187,426 77
Grading Eighth Avenue	98,099 45
Manhattan Street	58,747 57
One Hundred and Forty-fifth Street	7,023 76
Fireworks, July 4th, 1872	8 00
	$643,985 16

Less amounts transferred to the credit of the following accounts :

Maintenance account	$31,890 59	
Museum and Observatory, construction	18,377 04	
Parks and Places, maintenance, 1871	106,276 54	
Central Park, maintenance, 1871	186,817 42	
Roads and avenues, maintenance, 1871	24,766 06	
Museum and Observatory, maintenance, 1871	43,869 74	
North end of island	3,807 11	
East Side improvement	4,136 88	
Harlem River and Spuyten Duyvil improvement	29,673 52	
Boulevard	68,892 23	
Tenth Avenue	43,088 35	
Morningside Avenue	1,656 66	
Avenue at base of Morningside Park	2,194 08	
Town of West Farms	18,315 30	
Town of Yonkers	8,609 50	
One Hundred and Fifty-fifth Street	1,541 14	
Parade Ground	163 00	
American Museum of Art	1,312 99	
American Museum of Natural History	16,033 85	
Balance, cash, December 31st, 1872	32,563 16	
		$643,985 16

II.

STATEMENT

Showing Receipts and Expenditures of the Department for the year 1873.

SUMMARY.

Cash balance December 31st, 1872	$32,563 16	
The total receipts for the year ending December 31st, 1873, were	476,609 09	
Amount of bills, pay-rolls, &c., transmitted the Comptroller for payment	877,067 56	
		$1,386,239 81

The total expenses of the year have been	$1,364,261 85	
Amount transmitted the City Chamberlain of moneys received on account of the Corporation	19,559 58	
Balance, December 31st, 1873	2,418 38	
		$1,386,239 81

RECEIPTS AND DISBURSEMENTS.

CENTRAL PARK CONSTRUCTION ACCOUNT.

Balance, December 31st, 1872	$27,638 72	
From the issue of stock by the City of New York	230,000 00	
Amount of bills and pay-rolls transmitted the Comptroller for payment	418,701 20	
		$676,339 92

The expenditures have been as follows:

Pay of foremen, laborers, teams, carts, &c	$305,502 23	
Pay of officers, clerk, engineers, draughtsmen, &c	69,187 82	
Incidental expenses	16,265 16	
Materials of construction, tools, &c	125,761 56	
Stationery, printing, &c	7,867 93	
Trees and plants	6,100 92	
Manhattan Square	94,968 05	
Balance	50,686 25	
		$676,339 92

The total expenditures on this account, from May 1st, 1857, to December 31st, 1873, have been $8,873,671 50

IMPROVEMENT OF PARKS AND PLACES.

Balance, December 31st, 1872	$186,627 19	
Bills, pay-rolls, &c., transmitted the Comptroller for payment	108,800 16	
		$295,427 35

The expenditures on this account, during the year ending December 31st, 1873, were as follows:

Riverside Park.

Surveys, engineers, &c	$1,382 13	
Materials of construction and tools	1,436 51	
Pay of foremen, laborers, &c	7,111 20	
		$9,929 84

Morningside Park.

Surveys, engineers, &c	$1,498 91	
Materials of construction and tools	2,657 29	
Pay of foremen, laborers, &c	18,260 57	
		22,416 77

Lincoln Monument.

Surveys, engineers, &c	$135 36	
Materials of construction and tools	230 85	
Granite coping	3,119 00	
		3,485 21

Union Square.

Materials of construction, tools, &c	$4,225 44	
Ladies' Cottage	4,683 71	
Pay of foremen, laborers, &c	3,870 61	
Surveys, engineers, &c	1,102 12	
Fountain	4,878 00	
Pavement on Plaza	4,416 34	
Fitting up lamps	514 11	
Setting flag-poles	180 10	
Pavement of walks	4,000 00	
		27,870 43

Madison Square.

Pavement around the Square	$7,002 83	
Pay of foremen, laborers, &c	2,527 42	
Materials of construction and tools	3,458 01	
Surveys, engineers, &c	699 84	
Paving walks in Square	20,563 82	
Granite for fountain	752 00	
		35,003 92

Worth Monument.

Granite coping for enclosure	$515 00	
Fitting up lamps	30 11	
Surveys, engineers, &c	17 00	
Materials of construction and tools	576 72	
		1,138 83
Carried forward		$99,845 00

Brought forward		$99,845 00
City Hall Park.		
Surveys, engineers, &c	$519 48	
Pay of foremen, laborers, &c	875 15	
Fountain	3,779 16	
Materials of construction and tools	797 96	
		5,971 75
Tompkins Square.		
Materials of construction and tools	$24 85	
Surveys, engineers, &c	162 17	
Pay of foremen, laborers, &c	1,756 38	
		1,943 40
Washington Square.		
Pay of foremen, laborers, &c	$1,014 63	
Surveys, engineers, &c	359 74	
Fitting up lamps	18 08	
Materials of construction and tools	465 82	
Fountain	3,933 70	
		5,791 97
Battery.		
Pay of foremen, laborers, &c	$1,470 64	
Materials of construction and tools	403 36	
Surveys, engineers, &c	1,090 75	
Pavement of walks	8,128 73	
		11,093 48
Five Points Park.		
Surveys, engineers, &c	$390 79	
Pay of foremen, laborers, &c	1,346 26	
Materials of construction and tools	706 98	
Blue stone coping	820 00	
		3,264 03
Jackson Square.		
Surveys, engineers, &c	$135 50	
Fitting up lamps	42 72	
Pay of foremen, laborers, &c	904 79	
Materials of construction and tools	197 40	
		1,280 41
Mt. Morris Square.		
Pavement in Square	$958 52	
Pay of foremen, laborers, &c	5,870 00	
Surveys, engineers, &c	124 34	
Materials of construction and tools	5 92	
		6,958 78
Stuyvesant Square.		
Pay of foremen, laborers, &c	$827 63	
Fitting up lamps	4 13	
Materials of construction and tools	7 40	
		839 16
Carried forward		$136,987 98

Brought forward		$136,987 98
Park Avenue Parks.		
Coping	$1,595 78	
Pay of foremen, laborers, &c	92 24	
Surveys, engineers, &c	39 00	
		1,427 02
Reservoir Square.		
Materials of construction and tools	$586 35	
Surveys, engineers, &c	13 50	
		599 85
Cooper Institute Park.		
Pay of foremen, laborers, &c	$3 60	
Materials	4 00	
		7 60
Grand Street Park.		
Pay of foremen, laborers, &c	$3 60	
Surveys, engineers, &c	106 00	
		109 60
Sixty-sixth Street Park.		
Pay of foremen, laborers, &c	$3,825 24	
Materials	4 90	
		3,830 14
Plaza, Fifty-ninth Street and Fifth Avenue.		
Pay of foremen, laborers, &c		172 33
Canal Street Park.		
Pay of foremen, laborers, &c		114 31
Christopher Street Park.		
Surveys, &c		100 00
Sixth Avenue Parks.		
Materials		3 00
Bowling Green.		
Materials of construction and tools		48 85
Duane Street Park.		
Pay of foremen, laborers, &c		48 13
Beach Street Park.		
Pay of foremen, laborers, &c		29 74
Carried forward		$143,478 55

Brought forward	$143,478 55

Sixty-third Street Park.

Materials for constructing	255 92

Astor Place.

Surveys	60 13

Miscellaneous.

Salaries of officers, clerks, &c	13,000 00
Balance	138,632 75
	$295,427 35

METROPOLITAN MUSEUM OF ART BUILDING.

To balance, December 31st, 1872	$1,312 99	
Pay of foremen, laborers, &c	2,416 60	
Materials for construction and tools	5 52	
Architect's commissions	3,000 00	
		$6,735 11
Amount of bills, pay-rolls, &c., transmitted Comptroller for payment	$5,108 41	
By balance, December 31st, 1873	1,626 70	
		$6,735 11

AMERICAN MUSEUM OF NATURAL HISTORY BUILDING.

To balance, December 31st, 1872	$16,033 85	
Pay of foremen, laborers, &c	23,824 59	
Materials for construction	16,671 89	
Architect's commissions	5,200 00	
		$61,730 33
Amount of bills and pay-rolls transmitted Comptroller for payment	$24,631 05	
By balance, December 31st, 1873	37,099 28	
		$61,730 33

TOWN OF YONKERS.

To balance, December 31st, 1872	$8,609 50	
Surveys, engineers, &c	283 92	
Amount paid William Rumble on account of contract	6,281 21	
Amount paid Thomas C. Cornell on account of contract	3,894 43	
Incidental expenses	150 00	
		$19,219 12
Received from Treasurer of Westchester County	$12,083 25	
Received from town of Yonkers	4,521 59	
By balance, December 31st, 1873	2,614 28	
		$19,219 12

TOWN OF WEST FARMS.

To balance, December 31st, 1872	$18,315 30	
Surveys, engineers, &c	2,578 08	
Incidental expenses	157 08	
Paid George S. Greene, Jr., on account of contract	3,368 97	
		$24,419 43
Received from Treasurer of Westchester County	$15,469 42	
By balance, December 31st, 1873	8,950 01	
		$24,419 43

TOWN OF KINGSBRIDGE.

Surveys, engineers, &c	$155 73	
Incidental expenses	12,648 99	
Balance, December 31st, 1873	2,416 38	
		$15,221 10
Received from sale of bonds, with interest accrued		$15,221 10

HARLEM RIVER AND SPUYTEN DUYVIL IMPROVEMENT.

To balance, December 31st, 1872		$25,910 20	

The expenditures on this account during the year ending December 31st, 1873, were as follows:

Surveys, engineers, &c		1,861 78	
McComb's Dam Bridge.			
Paid A. Imhoff for repairs to bridge in 1871		6,254 21	
Harlem Bridge.			
Pay of foremen, laborers, &c	$73 56		
Materials	1,090 00		
Incidental expenses	9 00		
		1,172 56	
Fordham Bridge.			
Paid A. Imhoff for repairs to bridge in 1871		281 38	
King's Bridge.			
Paid A. Imhoff for repairing bridge in 1871		141 50	
			$35,621 63
Received from sale of bonds of Westchester County		$17,000 00	
By balance, December 31st, 1873		18,621 63	
			$35,621 63

SUSPENSION BRIDGE.

To balance, December 31st, 1872	$2,013 01	

The expenditures on this account during the year ending December 31st, 1873, were as follows:

Materials and tools for sounding	88 46	
Surveys, engineers, &c	227 50	
		$2,328 97

By balance, December 31st, 1873		$2,328 97

TUNNEL.

To balance, December 31st, 1872	$1,750 31	

The expenditures on this account during the year ending December 31st, 1873, were as follows:

Surveys, engineers, &c	1,868 91	
Tools and materials	35 27	
		$3,654 49

By balance, December 31st, 1873		$3,654 49

NORTH END OF THE ISLAND.

To balance, December 31st, 1872	$3,807 11	

The expenditures on this account during the year ending December 31st, 1873, were as follows:

Surveys, engineers, &c	888 21	
		$4,695 32

By balance, December 31st, 1873		$4,695 32

PARADE GROUND.

To balance, December 31st, 1872	$163 00	
Surveys, engineers, tools and materials	123 04	
		$286 04

By balance, December 31st, 1873		$286 04

MAINTENANCE ACCOUNT, 1873.

The receipts on this account during the year ending December 31st, 1873, were as follows:

For privilege of cutting ice from "Pool"	$150 00	
For interest	250 92	
From sale of grass	229 00	
From license fees	1,531 97	
From pound receipts	184 40	
From sale of sheep	30 00	
For removing broken vehicles	2 50	
From sale of sundries	500 89	
For rent	675 00	
From the City of New York for account of maintenance	160,000 00	
Amount of bills, pay-rolls, &c., sent to Comptroller for payment	319,654 45	
		$483,209 13

The expenditures on this account have been as follows:

CENTRAL PARK MAINTENANCE.

	LABOR.	MATERIALS.	
Care of roads	$35,593 97	$416 42	
Repairing roads	2,064 19	2,248 12	
Care of bridle roads	1,985 44		
Repairing bridle roads	10 00		
Care of walks	19,064 97	289 72	
Repairing walks	8,458 94	3,486 21	
Plantations	24,792 35	404 43	
Turf	18,792 65	693 01	
Water	1,035 08	11 14	
Ice	18,061 12	1,454 29	
Irrigation	2,171 19	70 92	
Thorough drainage	7 77		
Transverse roads	911 85	68 84	
Masonry and bridges	3,583 93	65 79	
Tools	4,249 93	225 53	
Surface drainage	73 82	68 45	
Buildings	22,099 41	2,870 24	
Lighting park	30 75		
Park and gate-keepers' wages and uniforms	79,499 41	1,218 71	
Care of animals	8,928 43	13,046 19	
Manure	483 97		
Special police duty	8,360 87	1,525 27	
Care of sheep	1,062 12	18 84	
Carrousel	859 68		
Miscellaneous work	8,037 30	1,669 21	
General foreman	1,260 00		
Watchmen	3,500 60		
Workshops	1,887 12	125 27	
Propagating house	9,342 58	17 30	
Seats, signs, &c	1,564 68	757 32	
Stables	4,790 62	2,625 40	
Music		3,855 00	
	$292,564 74	$37,231 62	$329,796 36

Maintenance of Parks and Places.

Park-keepers' wages, &c	$8,941 50	
Gas and lighting lamps	6,216 86	
Music	3,100 00	
Repairing pavement	995 50	
Labor—Pay of foremen, laborers, &c	46,717 87	
Materials, &c	1,768 63	
		67,740 36

Maintenance of Museum, Observatory, &c.

Museum	$12,121 76	
Gallery of Art	2,368 74	
Meteorological Observatory	5,036 45	
		19,526 95
Carried forward		$417,063 67

Brought forward		$417,063 67

Maintenance of Harlem River Bridges.

Pay of draw-tenders, laborers, &c	$5,198 09	
Materials	1,263 81	
Gas	1,036 28	
Painting	550 00	
		8,048 18

Fireworks, July 4th, 1873.

Expended for fireworks		9,598 97
Proportion of salaries of officers, clerks, &c		22,772 21
Incidental expenses		17,325 81
Amount paid to Chamberlain		1,462 56
Stationery and printing		4,371 34
Balance		2,566 39
		$483,209 13

CONSTRUCTION OF MUSEUM AND OBSERVATORY, ETC.

To balance, December 31st, 1872	$18,377 04	
Pay of laborers, &c	562 52	
Materials	214 83	
		$19,154 39

Amount of bills, pay-rolls, &c., sent to Comptroller for payment	$172 29	
Balance	18,982 10	
		$19,154 39

BOULEVARD.

To balance, December 31st, 1872	$68,892 23	
Paid in 1873 for repairing damage caused by blast in 1872	5 22	
		$68,897 45

AVENUE ST. NICHOLAS.

By balance, December 31st, 1872	$187,426 77	
Paid in 1873 for materials delivered in 1872	175 00	
		$187,251 77

MAINTENANCE, 1872.

To balance, December 31st, 1872	$31,890 59	
Paid park-keepers' pay-roll of December 31st, 1872	7,433 91	
		$39,324 50

TOWN OF EASTCHESTER.

Surveys, engineers, &c	$572 96

Received from sale of certificates of indebtedness	$572 96

APPENDIX B.

REPORT

OF THE

SUPERINTENDENT.

SUPERINTENDENT'S OFFICE,
NEW YORK, March 31st, 1874.

S. H. WALES, Esq.,
President, Department of Public Parks.

SIR: — In accordance with your letter of March 7th, 1874, desiring me to furnish a statement of the various works and transactions of interest in connection with the Parks under the control of your honorable body, I append the following as the most important that have occurred during the period mentioned in your letter, viz., from May 1st, 1872, to December 31st, 1873.

The greater portion of the work done during the spring and summer of 1872 consisted of filling in and grading the slopes rendered necessary by the change of the grade of Eighth avenue. This work was commenceed early in the spring and a large force employed in hauling filling for the slopes, and excavating for the foundations for the wall; the work was continued during the entire season until the cold weather precluded further operations.

Work on this improvement was again resumed in the spring of 1873, and pushed forward with all possible dispatch, and the greater portion of the foundation for the wall on Eighth avenue completed. A large amount of work of a similar character was done on One hundred and tenth street, between the Sixth and Eighth avenues, rendered necessary by the change of grade of One hundred and tenth street.

The change of grade of Eighth avenue rendered necessary a large amount of work on the drives at the Park entrances at Eighty-fifth street and One hundredth street. The improvements at Eighty-fifth street were completed late in the fall of last year, whilst those at One hundredth street are far advanced towards completion.

The change of the grade of One hundred and tenth street rendered it necessary to raise the drive at the Sixth and Seventh Avenue entrances. The work was commenced late in the fall and has been continued uninterruptedly during the past winter. The greater portion of the filling required on this improvement has been put in, and the surface of the road-bed made ready to receive the top-dressing of gravel.

The work of grading and filling on Manhattan square was resumed in the spring of 1872, and continued during the years 1872 and 1873. All the rock above the grade of the adjoining streets has been removed, and the refuse material used for filling. A large amount of filling has also been delivered on the square, both by days' work and under contract. The foundation for the Museum of Natural History has been completed, and the building is now in course of erection under contract.

The unfinished building known as the Deer House was removed from the meadows at Ninety-second street, by order of the Board, May 9th, 1872, and the ground graded and seeded down.

The granite fountain erected in the City Hall Park, which was commenced in 1872, has been, together with the bronze work, completed during the past winter.

The fountain erected at Fifty-ninth street and Fifth avenue was, by order of the Board (August 3d, 1872), removed, and re-erected in Washington square, but remains in an unfinished state.

The improvements at Union square have been completed, with the exception of the painting of the iron work, and the connecting of the gas-pipes to the meter.

The improvements at Mount Morris square have been carried on during the entire period covered by this report. The new walks in the southern portion of the square have been completed and the rustic stone steps, ordered August 8th, 1872, have been completed and placed in position.

The small triangles at the intersection of the Boulevard, Ninth avenue and Sixty-third street, have been graded and filled according to instructions received August 20th, 1872.

The foundations for the statues of Sir Walter Scott and the Indian Hunter were completed, as per instructions received September 14th, 1872. Both of the above mentioned statues have been placed in position, that of Sir Walter Scott having been appropriately dedicated by the various Scottish societies of our city.

The wooden tower on the Belvidere was removed under instructions received November 9th, 1872. The blue-stone floors have been taken up and replaced by the Neuchatel rock pavement; and alterations made in the clock tower and other portions of the building.

Orders were received January 24th, 1873, to make excavations for the foundation of the Inscope Arch, but the work was not commenced until late in the spring. Considerable difficulty was experienced in this work in consequence of quicksand, and it was found necessary to drive spruce piles in order to secure a proper foundation for the safe erection of the work. After the piles were driven yellow pine caps were placed on them and then planked over with heavy timbers. Upon this the stone foundation was built and finished late in the fall, when the work of construction was suspended in consequence of the approaching cold weather. The new system of walks connected with this improvement are far advanced, the excavations having been made and the base of rubble stone placed therein. A large quantity of filling was required to properly shape the ground where the pathway crosses the Bridle road; this filling is nearly completed. During the construction of this work it was necessary to erect a temporary wooden bridge under the main drive.

Orders were received, February 27th, 1873, to furnish materials and build foundation wall for a new boat landing on the east side of the Lake, but were countermanded before the work was commenced. A large portion of the wood-work for this structure has been completed, and the granite water table finished.

The alterations at the Pergola, ordered March 18th, 1873, have been completed, and the iron gratings placed in position as ordered.

The building known as the Carrousel has been removed from the site which it formerly occupied, and placed about fifty feet further north on a more elevated position. A basement has been constructed under this building with an entrance leading from the transverse road, and suitable machinery built and placed therein for propelling the "Merry-go-round," by horse-power. The building has also been thoroughly repaired and painted.

The alterations and additions at the Casino, ordered March 24th, 1873, were commenced as early as possible after the receipt of orders. The work of making the excavation for the cellar was very tedious, in consequence of it being nearly all solid rock, and great care had to be exercised in blasting so as not to endanger the building. The work was pushed forward with all possible dispatch, but, before it was completed, orders were received (May 15th, 1873) to suspend all work in construction, in consequence of the exhaustion of funds appropriated for construction work. Work was again resumed June 27th, 1873, and the building completed during the summer.

Work was commenced in November last on that portion of Riverside Park lying south of Seventy-ninth street. The ground has been cleared of all surface stones, stumps, &c., and all dead or worthless trees removed. The portion of the Park lying between One hundred and fourth and One hundred and twentieth streets has also been treated in a similar manner, in accordance with orders received November 9th, 1873. A considerable portion of the retaining wall required on the lower section of the Park has been built, and the excavation made for the balance of the same.

The work on Morningside Park was commenced last fall and has been carried on with but little intermission throughout the winter. A large force has been employed in this work in clearing and shaping the ground, making excavation for the walks, &c. The greater portion of the excavation for the Lagoon in the southern part of the Park has been completed, and such portion of the rock as interfered with the construction of the walks has been removed. About one thousand feet of the main sewer for draining the Park has been finished. A large force of rockmen and stone-cutters have been employed for some time past, at One hundred and twenty-sixth street and Ninth avenue, in quarrying and cutting stone for the enclosing walls of the Park.

The work of shaping and grading the Five Points Park has been carried forward according to instructions received April 19th, 1873. The blue-stone curb has been set around the enclosure and the foundation for the fountain constructed; pipes for the water supply of the fountain have been laid, and the drain pipes placed in position, and connection made with the street sewer.

Improvements and additions have been made in the propagating buildings at Mount St. Vincent; and a new hot-house, one hundred and twenty feet in length, constructed. A site has been selected, north of transverse road No. 4, for a nursery and the ground cleared and prepared for the same.

The new workshops, located on transverse road No. 3 (a portion of the foundation only of which was constructed when I entered upon my duties as Superintendent in November, 1871) have been completed, and thoroughly equipped with improved machinery. The motive power for driving the same is derived from a ten-horse power Baxter engine; steam from this engine is also used for heating the building in cold weather; a steam hammer has been constructed entirely by our own force, and placed in the blacksmith's shop, by which we are enabled to do all heavy forging much more economically than heretofore; the scrap-iron which formerly was sold for a small consideration is now worked into bars and used for shoeing horses. The machinery in the various shops comprises the following, viz.:

MACHINE SHOP.

Two lathes for turning iron,
One drill,
One emery grinder.

CARPENTER SHOP.

One wood turning lathe,
Two circular saws,
One upright saw,
One gig saw,
One boring machine.

BLACKSMITH SHOP.

One steam hammer.

One Sturtevant blower.

A small feed mill has also been placed in this building.

The work of excavating for the foundation of the Art Museum was commenced late in the fall of 1872. The trenches for the same were completed, and test pits dug for the purpose of ascertaining the nature of the surface of the rock which underlies the greater portion of the site selected. Work was suspended early in the winter, and not resumed again until the fall of 1873. The greater portion of the force employed on this work has been for some time past engaged in constructing a brick sewer (four hundred and ninety feet in length), which was found to be necessary for the proper drainage of the building. The progress of blasting out the rock from the cellars of the building was necessarily slow, until the completion of the above mentioned sewer.

One of the most important works completed during the past year, was the Bethesda Fountain on the Esplanade, north of the Terrace. This work, which has been in the course of erection for several years past, has been finished, and was publicly exhibited on May 31st, 1873

The change in the walks in the vicinity of the Music Pavilion have been made in accordance with instructions received March 31st, 1873, and the new seats constructed and placed as directed.

The granite coping of the fountain at Union square has been set, and the granite centre piece erected.

The foundation for the enclosure to the Lincoln Monument has been constructed according to orders received August 14th, 1873, and the granite work erected on the same.

The foregoing comprise the most important improvements made during the time covered by this report, although many others of less importance have been carried on and completed in the same period, viz.:

Foundations constructed for the two candelabra at Madison square.

Foundations laid, and drinking fountains erected, in several of the Parks in the lower part of the City, viz.:

Four in City Hall Park, two in Union square, and one at the Worth Monument. A granite drinking fountain for horses has also been erected at the last mentioned place.

An iron service-pipe has been laid across Eighth avenue, into Manhattan square, to furnish a supply of water during the erection of the Museum of Natural History.

The wood-work of Bankrock Bridge has been removed and replaced by a new structure, built after the same design.

One hundred and fifty trees of various species have been removed from Central Park and planted in Union, Madison, Jackson and Washington squares.

The posts and chains around the borders of the plots have been removed, and various changes made in the walks of Washington square.

The sidewalk around Jackson square has been laid with blue-stone flag, and the grounds of the Park seeded down and planted.

One hundred and twenty trees, which were removed from the slope at One hundred and tenth street, have been planted in Tompkins square, and a cultivated border twelve feet wide constructed around the entire Park.

Extensive alterations were made in the building corner of Sixteenth street and Fourth avenue, in order to properly arrange the same for the various offices of the Department.

Six heavy iron cages have been constructed for the Zoological collection; also ten new cases for the Museum of Natural History.

The wood-work and mantles have been placed in the Loggias at the Sheepfold, and the ornamental plastering finished.

4,594 lineal feet of earthen drain pipe has been laid in the various parks as follows:

1,786	feet of	4-inch	pipe.
125	"	5 "	"
1,456	"	6 "	"
528	"	8 "	"
320	"	10 "	"
379	"	12 "	"

The following is the quantity of lead pipe laid in the various parks during the period embraced by this report:

1,522	feet of	⅝-inch.
1,670	"	¾ "
238	"	1 "
107	"	1½ "
650	"	2 "

The necessary amount of work required for the proper maintenance of the drives, walks, lawns, shrubbery, &c., has been carefully and diligently attended to. All the drives have been put in complete repair, and the gutters raised in several localities where it was deemed necessary, in order to reduce the crown of the road.

When I entered upon the duties of my position as Superintendent, I found many of the walks in a very dilapidated condition, particularly so in the lower portion of the Central Park. The pine tar and other experimental pavements that had been laid, had become so cracked and so disintegrated that it was necessary to relay the greater portion of them. The requisite machinery was purchased and the right secured to put down what is known as Ranney's Patent Pavement. A force was organized specially for this work and placed in charge of an experienced foreman, and the work prosecuted with all possible dispatch. Although great progress has been made in those repairs, a large amount of work still remains to be done, and operations will be resumed again as soon as the weather will permit. I am confident that the walks as now constructed will last from ten to fifteen years, the only repairs required during that time will be a surface coat of tar applied hot and then covered with fine sand. This should be attended to every two years; the expense of the same will be very slight. The following is a statement of the amount of work accomplished:

4,518 square yards of new walks completed.
28,594 " " " old walks relaid.
1,020 " " " base for new walks have been laid, the top-dressing of which will be applied during the coming spring.

About 4,000 square yards of new walks have also been laid by the Grahamite Pavement Company during the same time. These walks prove to have been constructed of excellent material, having stood the test of the last two winters without cracking.

The skating season of the winter of 1872 and 1873 proved to be one of the longest and finest in the history of the Park, commencing December 16, 1872, and continuing almost uninterruptedly until March 7th, 1873, embracing a period of fifty-nine days skating, the ice throughout the entire season continuing firm and smooth. The attendance during the season compared favorably with that of former years. Some idea of the amount of labor required to keep the ice in proper order, may be obtained from the following figures :

The area of the lakes used for skating is about thirty acres: during the skating season snow fell to the aggregate depth of four feet, making it necessary to remove 156,500 cubic yards, or 469,500 cart loads of snow from the ice, all of which had to be shoveled back and piled upon the bank of the lake; and in order to accomplish this, the snow had to be handled two or three times by the force engaged on the work.

The sleighing season for the years 1872 and 1873 embraced a period of forty-eight days, commencing November 29, 1872.

The popular open air concerts, under the direction of Mr. Harvey B. Dodworth, were held at the various parks during the year 1872, as follows:

At the Battery, Tuesday afternoons.
" Mount Morris, Wednesday "
" Tompkins square, Friday "

and the usual Saturday afternoon concerts on the Mall.

The 4th of July, 1872, was celebrated by displays of fireworks and music at the following places, viz. :

The Battery, City Hall, Washington, Tompkins and Madison squares.

The musical season of 1873 embraced the following programme:

At Washington and Tompkins squares each alternate Tuesday.
At Madison square and Mount Morris, each alternate Thursday.
And the regular concert on the Mall on Saturday afternoon.

The 4th of July, 1873, was celebrated by displays of fireworks and music at the following places: Mount Morris, Madison square, Union square, Tompkins square, City Hall, Washington square, Jackson square, the Battery, Grand Street Park, Canal Street Park, the Circle, Riverside Park at One hundred and third street, Fort Washington, and in the Twenty-third Ward at Fleetwood Park.

The attendance at the musical entertainments given to the public during the years 1872 and 1873 has been very large.

The Ball Ground still continues to be one of the leading features of the Park, and the attendance upon the days set apart for the indulgence of this popular amusement has been very great, showing conclusively that the interest taken in this healthful exercise has not diminished.

The attendance at the Croquet Ground has increased during the past season, the interest in that game being apparently unabated.

Very respectfully,
COLUMBUS RYAN,
Superintendent, D. P. P.

Appendix C.

REPORTS

OF THE

New York Meteorological Observatory

In the Central Park,

FOR THE

YEAR ENDING DECEMBER 31st, 1872,

AND THE

YEAR ENDING DECEMBER 31st, 1873.

Latitude 40° 45′ 58″ N.
Longitude 73° 57′ 58″ W.
Height above the sea 97 feet.

REPORT OF THE DIRECTOR OF THE NEW YORK METEOROLOGICAL OBSERVATORY,

CENTRAL PARK,

FOR 1872.

To Board of Commissioners of the Department of Public Parks:

GENTLEMEN:—The Meteorological records of this Observatory for the past year (1872) have been uninterrupted. Complete registers of the pressure and temperature of the air, of the wind and rain, obtained by the self-recording instruments, have been filed away in suitable books. The necessary reductions and calculations have been made. They are arranged and ready for future reference.

To the instruments previously in use, I have added another pencil barometer, constructed on the general principles of that described in the report of 1870, but in a form somewhat more compact. It is placed in the room which is open to the public, with a view of satisfying the curiosity so frequently expressed, not only as to whether the mercury is rising or falling, but also as to the movements it has exhibited for some time previously. Its register for the preceding day is attached, to enable such comparisons to be made.

There has also been roughly constructed a metallic thermometer on a new principle, which thus far has acted in a very satisfactory manner. It is self-recording. I propose to keep it in its present form under trial somewhat longer, and should it continue to work as accurately as it has hitherto done, shall then have it more carefully made. Its indications depend on the difference of expansion and contraction between brass and glass.

That portion of my report of last year which treated of the climate change of the United States, has not only attracted much attention, but also led to much discussion. So general was the impression that not only a change, but a very great change, in that respect had taken place, that the thermometric records it presented were received with no little surprise. The same remarks may be made as respects the quantity of rain. The statements adduced in that report were altogether derived from instrumental observations. Some persons, however, have been disposed to compare them with historic records, with a view of controverting them, forgetting that conclusions founded on observations and instrumental measures are far preferable to the unreliable statements sometimes presented by the vivid imagination of the historian, who frequently pictures events not so much with scientific exactness as for the sake of scenic effect.

Under these circumstances, I therefore think it not inappropriate to continue in this report the investigation commenced in the preceding one, and to bring the general question to a complete conclusion. On that occasion, so far as temperature is concerned, I considered only the cold or winter months of the year. Now, I shall examine in like manner the hot months, June, July and August, for the same periods, with the intention of determining whether there has been any recognizable change for many years past in the temperature of that season of the year.

The points to be considered in this report are the following:

(1st.) *Has the summer temperature of the Atlantic States undergone any modification?*

(2d.) *What is the direction in which atmospheric fluctuations cross the United States?*

(3d.) *Is it possible to trace the passage of American storms across the Atlantic, and predict the time of their arrival on the European coast?*

(1st.) HAS THE TEMPERATURE OF THE ATLANTIC STATES UNDERGONE MODIFICATION?

Commencing with New York City, as was done in the last year's report, and deriving the observations from the same sources which furnish a continuous record for the summer months from 1821, we shall, on the principle then adopted, take groups or periods of 5 years each, and compare them with each other. On referring to that report it will be found that these groups are first, from 1821 to 1827; second, from 1831 to 1837; third, from 1841 to 1847; fourth, from 1866 to 1872. As just stated, the months now selected are June, July and August.

I.

TABLE *showing the mean temperature in New York for the three hot months of the year—June, July, August.*

1st Period.		2d Period.		3d Period.		4th Period.	
Years.	Temperature.	Years.	Temperature.	Years.	Temperature.	Years.	Temperature.
1822	74.5	1832	71.2	1842	71.5	1867	69.3
1823	72.4	1833	70.4	1843	73.2	1868	72.0
1824	70.7	1834	71.9	1844	72.2	1869	71.2
1825	76.6	1835	69.8	1845	71.3	1870	74.8
1826	73.8	1836	67.7	1846	70.9	1871	71.3
Mean for 5 years.	73.60		70.20		71.82		71.72

The mean of June, July and August, for 33 years, is..........72.09 degrees.
The mean for the above selection is..........................71.83 "

It may be interesting to remark that the highest mean monthly temperature on record for New York is 81 degrees in July, 1825.

We turn now to the Philadelphia records. They reach back to 1748, and for the hot months, as in the case of the cold months, they present a broken series of observations. Fortunately, however, the periods we now require are complete. They are as follows—first, from 1766 to 1772; second, from 1797 to 1803; third, from 1821 to 1827; fourth, from 1831 to 1837; fifth, from 1851 to 1857.

II.

TABLE *showing the mean temperature of Philadelphia for the three hot months of the year—June, July, August.*

1ST PERIOD.		2D PERIOD.		3D PERIOD.		4TH PERIOD.		5TH PERIOD.	
Years.	Temperature.	Years.	Temperature.	Years.	Temperature.	Years.	Temperature.	Years.	Temperature.
1767	73.5	1798	77.3	1822	72.7	1832	73.0	1852	73.6
1768	68.6	1799	74.2	1823	78.7	1833	71.0	1853	74.6
1769	73.0	1800	73.5	1824	77.1	1834	74.3	1854	75.4
1770	71.6	1801	73.3	1825	74.7	1835	73.6	1855	73.9
1771	70.3	1802	73.6	1826	73.3	1836	68.8	1856	75.6
Mean for 5 years.	71.40		74.38		75.30		72.14		74.62

The mean for June, July and August, for 56 years, is...........73.79 degrees.
The mean for the above selection is..........................73.57 "

From this it appears that there has been no decided change of temperature in the summers of Philadelphia. The first and fourth periods vary only seven-tenths of a degree, the second and fifth only two-tenths of a degree. The difference of temperature between New York and Philadelphia for these hot months is only 1.51 degree, while we found it in the cold months to be 2.66 degrees.

We have records of Boston dating back 86 years. Unfortunately they are not all taken from the same station. Assorting them into periods of five years, as was done for the cold months, we have first, from 1797 to 1803; second, from 1821 to 1827; third, from 1831 to 1837; fourth, from 1850 to 1856.

III.

TABLE *showing the temperature of Boston for the three hot months of the year—June, July, August.*

1st Period.		2d Period.		3d Period.		4th Period.	
Years.	Temperature.	Years.	Temperature.	Years.	Temperature.	Years.	Temperature.
1798....	72.5	1822	70.5	1832	67.4	1851	68.0
1799....	71.2	1823	69.9	1833	67.4	1852	68.8
1800....	70.2	1824	68.7	1834	68.7	1853	68.2
1801....	70.7	1825	73.0	1835	68.6	1854	69.4
1802....	70.9	1826	71.1	1836	64.4	1855	68.3
Mean for 5 years.	71.10		70.64		67.30		68.54

The mean for June, July and August, at Boston, for 84 years, is 69.43 degrees.
The mean for the above selection is........................ 69.39 "

The mean temperature for the three hot months in Boston is 2.66 degrees lower than that of New York. This is nearly the same difference that we found for the cold months in the last year's report.

Treating the Charleston records in a similar manner, we have for the periods—first, from 1749 to 1755; second, from 1754 to 1760; third, from 1822 to 1829; fourth, from 1830 to 1836; fifth, from 1849 to 1855.

IV.

TABLE *showing the mean temperature of Charleston, for the three hot months of the year—June, July, August.*

1st Period.		2d Period.		3d Period.		4th Period.		5th Period.	
Years.	Temperature.	Years.	Temperature.	Years.	Temperature.	Years.	Temperature.	Years.	Temperature.
1750.....	79.3	1755	78.0	1823	79.0	1831	80.4	1850	81.3
1751.....	80.3	1756	79.3	1824	80.8	1832	78.9	1851	81.3
1752.....	80.6	1757	78.0	1825	81.6	1833	79.5	1852	79.2
1753.....	79.0	1758	80.0	1827	80.4	1834	80.9	1853	81.0
1754.....	79.0	1759	84.0	1828	83.8	1835	79.8	1854	81.0
Mean for 5 years.	79.64		79.86		81.10		79.90		80.76

From this it appears that the mean of the fifth series is very near the mean of all the other four, theirs being 80.12, and its 80.76 degrees.

The general conclusion at which we are constrained to arrive from this examination of thermometrical records reaching back for many years is, that there has been no change in the temperature of the three hot months of the year in any portion of the Atlantic States.

Now we may profitably recall some of the conclusions deduced in the report of last year. 1st, taking the rainfalls in successive periods of 10 years each, and comparing them together, we found that there had been neither an increase nor a diminution in the mean quantity of rain. 2d, as respects the temperature of the cold months we found that the number of days the Hudson River had remained closed, taken in periods of ten years, from 1817 to 1867, was about 91, and that during the entire period of record that mean was not departed from. We pointed out that observations of this class have certain advantages over the thermometric ones, in representing the temperature over a long line of country, and not being subject to local disturbances. Incidentally we remarked that in the case of certain European rivers, of which we possess exact records, their time of remaining closed, when considered for long periods, does not vary more than a fraction of a day. 3d. From thermometric records made in New York, Philadelphia, Boston, Charleston, for the first three or cold months of the year, we concluded that no change could be substantiated as having occurred in the mean temperature of these months for very many years past.

In view of all the facts, then and now presented, it may be asserted that the climate of the Atlantic States has not undergone any essential modification, and that the mean heat of summer and the mean cold of winter are the same now that they were more than a century ago.

Against this conclusion, which is based essentially on recorded instrumental observations, I cannot admit the force of any alleged historical facts. I have, a few lines above, made a remark bearing on this point, and I may add that the productiveness or infertility of a country depends not merely on its climate. If it has been wasted by war, oppressed by heavy taxation, its population diminished, its energies lost, we cannot suppose that its agricultural productiveness will equal what it might have been under a better state of things. It is also necessary to bear in mind the great topographical changes that have happened in some countries through geological causes.

Here the surface of great districts has sunk, there it has risen; in one place sands have encroached on the soil, in another the course of rivers has been changed. It is useless to draw any inference from the present desolate condition of the regions of the Euphrates and Tigris, or of the Holy Land, as contrasted with their amazing fertility in the olden days, before they had been repeatedly ravaged by war, ground down by oppression, and were under better government. Changes such as these have nothing to do with changes of climate.

Through the kindness of Prof. Silliman of New Haven, my attention has been drawn to a paper by Professors E. Loomis and H. A. Newton, in the Transactions of the Connecticut Academy for 1866, on the mean temperature and fluctuations of temperature at New Haven, in Connecticut.

I greatly regret that I had not seen this valuable paper previously, as it would have added much strength to the cases I presented in my report of last year. It gives records for New Haven from 1779 to 1867.

Treating the records furnished by this paper as in the preceding cases, and dividing them into periods of 5 years each, we have for the first period, from 1797 to 1803; second, from 1821 to 1827; third, from 1831 to 1837; fourth, from 1850 to 1856; fifth, from 1860 to 1866.

V.

TABLE *showing the mean temperature of New Haven for the three hot months of the year—June, July, August.*

1st Period.		2d Period.		3d Period.		4th Period.		5th Period.	
Years.	Temperature.	Years.	Temperature.	Years.	Temperature.	Years.	Temperature.	Years.	Temperature.
1798	73.1	1822	66.9	1832	67.5	1851	68.6	1861	71.6
1799	72.6	1823	68.1	1833	67.6	1852	68.5	1862	72.1
1800	71.2	1824	67.7	1834	68.7	1853	68.6	1863	71.6
1801	71.3	1825	71.7	1835	68.3	1854	70.6	1864	72.3
1802	71.2	1826	69.1	1836	66.3	1855	68.7	1865	70.4
Mean for five years.	71.88		68.70		67.68		69.00		71.60

The mean for June, July and August, for 86 years, is..........69.76 degrees.
The mean for the above selection is...........................69.77 "

In this table the first period gives nearly the same result as the fifth, being 71.88 and 71.60, respectively. The same remark may be made as regards the second and fourth, which give 68.70 and 69, respectively.

The following quotations from this paper strikingly confirm for New Haven the results at which we had arrived in the case of other Atlantic cities.

"In order to determine whether the mean temperature of New Haven has changed since the time of the earliest recorded observations, we have divided the entire series of observations into two groups, the first embracing the observations down to 1820, forming a series of 41 years; the second embracing the observations since 1820, forming a series of 45 years."

"If we make the comparison by seasons, the numbers are:

SEASONS.	FIRST SERIES.	SECOND SERIES.	DIFFERENCE.
Winter	28.32	28.39	+ 0.07
Spring	46.74	46.73	– 0.01
Summer	69.99	69.34	– 0.65
Autumn	51.39	51.24	– 0.15
Year	49.11	48.93	– 0.18

"The final result is that the mean temperature of New Haven, by the last 45 years, is one-fifth of a degree lower than by the first 41 years; but this quantity does not exceed the probable zero error of most of the thermometers employed in the observations, and we must conclude that if the mean temperature of New Haven has changed at all since 1778, the change amounts to only a small fraction of a degree, and cannot be certainly decided from the observations."

In their paper they show that there is a very slight difference in the early and late frost for those same years, and the same may be said of snow and the flowering of trees. I cannot do better than give their last table containing these results:

	FIRST SERIES.	SECOND SERIES.	DIFFERENCE.
Last snow of Winter	March....29.7	March.... 28.1	– 1.6
Peach trees in blossom	May...... 1.9	May...... 2.3	+ 0.4
Apple trees in blossom	May......12.7	May......12.1	– 0.6
Last frost of Spring	May......19.1	May......18.9	– 0.2
First frost of Autumn	September.22.2	September.20.4	– 1.8
First snow of Winter	November.24.4	November.26.3	+ 1.9

"The differences between the two series of observations, as shown in the last column, are sometimes positive and sometimes negative; the average of all the differences being negative, and amounting to quite not one-third of a day.

"When we consider that the observations which are here compared were made by more than twenty different persons, without concert and without any uniform system of observation; that the subjects of observation are in their very nature somewhat indefinite; and that many of these records were casually made, without any idea that special importance would ever be attached to them, we must admit that the small discrepancy of one-third of a day may have resulted from the want of uniformity in the system of observation, without implying the slightest permanent change in the character of our climate.

"We conclude, therefore, finally, that during the past 86 years there has been no permanent change at New Haven, either in the mean temperature of the year or in that of any of the separate months; and that there has been no permanent change in the average date of occurrence of the last frost of spring, or the first frost of autumn--of the first snow of winter, or the last snow of winter—or in the average date of flowering of fruit trees, such as peach, cherry, etc."

These temperature results, derived from the New Haven records, agree with those we have gathered for the cold months in last year's report, and for the hot months in this. I might extend the same conclusions for portions of the Mississippi valley, but it would make this report unduly long. The records of New Orleans, Cincinnati, St. Paul, &c., so far as they go, indicate a like stability of climate.

The period to which the year 1836 belongs is well worthy of attention. In some respects it seems to be an exception to the general uniformity, as appears from the synoptic chart of the mean annual temperature, Plate I. The mean annual temperature of New York began to decline in 1830, and continued so to do for two years; then it remained stationary for two years more, and then for two years—that is to say, to 1836—it fell again. Thus far it had fallen 7.2 degrees. It then commenced to rise, returning in the same manner that it had fallen, but only 5.8 degrees. In New York the fall had been from 54.8 to 47.6 degrees; the rise was from 47.6 to 53.4 degrees. This remarkable variation extended from Boston to New Orleans, along the Atlantic and Gulf coasts, but it did not occur in the interior of the continent, as at Fort Snelling, near St. Paul. In plate I, I have given the curves for several American cities, and also for St. Petersburgh, in Russia. I have introduced that of the last-named city, in which we do not detect this variation, because it seems to me to have much significance in the interpretation that should be given of the event. Variations such as this can be due only to one of two causes, astronomical or terrestrial. If the sun's light decline in brilliancy, there must be a decline in the mean temperature; if it increases, there must be an increase. Some persons might be disposed to refer the variation under consideration to that astronomical cause; but if such were the case the temperature should simultaneously change in all localities on the face of the earth. We should detect decline in St. Petersburgh and Fort Snelling as clearly as in the Atlantic cities, or in those of the Gulf. Hence I infer that the cause in question was not of an astronomical nature, but of a local and temporary kind.

(2.) WHAT IS THE DIRECTION IN WHICH ATMOSPHERIC FLUCTUATIONS CROSS THE UNITED STATES.

My attention was first strongly drawn to this subject by the disaster which befel a large number of deciduous and evergreen trees in the spring of last year (1872). Of these there were destroyed in the Central Park alone nearly eight thousand, and it was estimated that there were killed in the country from the Atlantic to beyond the Mississippi, and from Virginia to Canada, many millions. It was recognized that this great destruction was due to a sudden and severe cold which occurred about the middle of March. The detail of the facts is as follows:

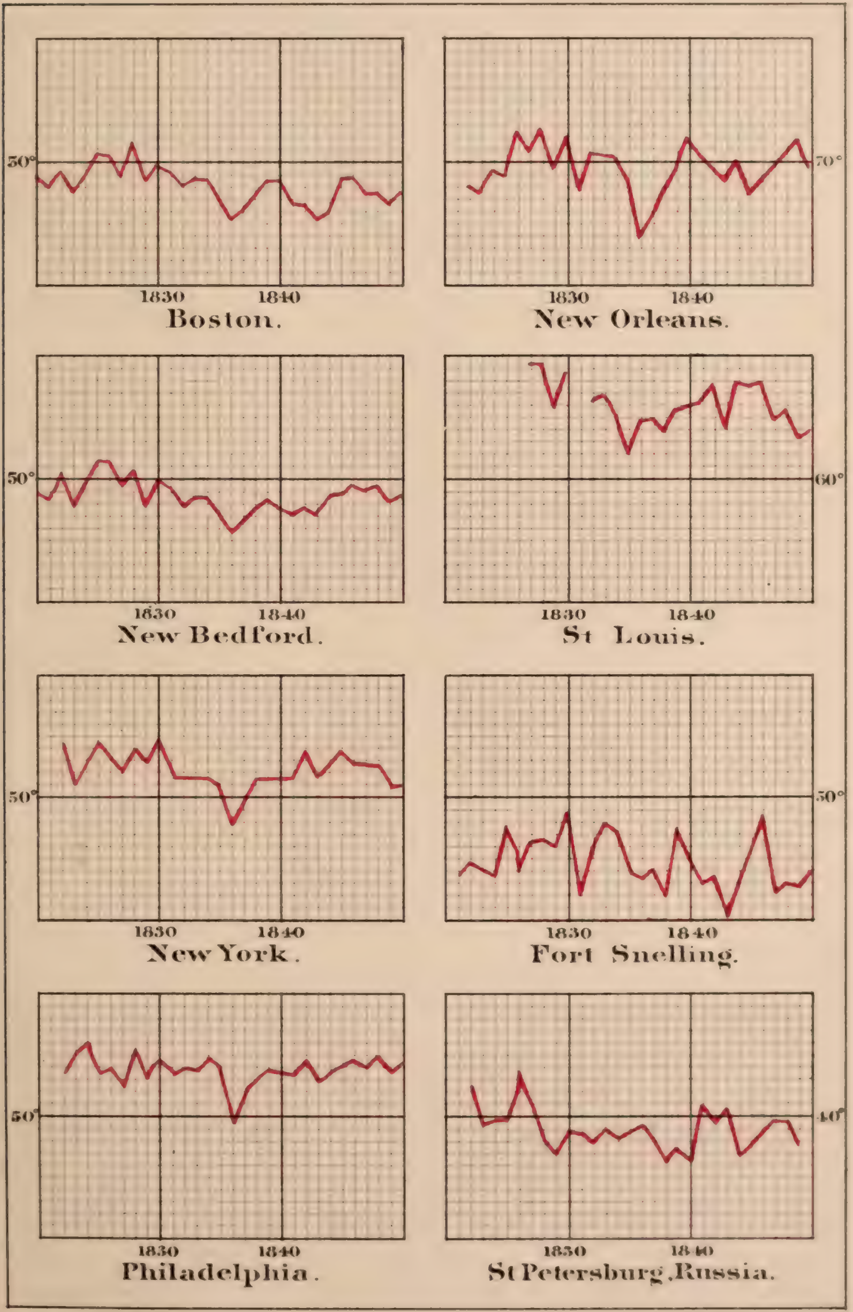
On the 15th of March there was a strong and bitter wind from the north-west, with sleet; the thermometer fell from 51 degrees to 17.2 degrees. Every branch was covered with icicles, and the temperature not rising at 2 P. M. higher than 27 degrees, they did not melt for more than a day. It was this intense cold, occurring after the sap had risen in the trees in question, that was the cause of their destruction.

With a view of ascertaining the direction and rate of progress of this intense cold, I collated the records of our observatory with the daily maps published by the War Department at Washington, and with the following result:

On the 13th of March, a cold wind coming from the north-west appeared in all the region between the Rocky Mountains and the Mississippi river. It lowered the temperature of the places over which it was passing by more than 20 degrees. It had a front of at least a thousand miles and probably much more; the velocity of this wind was about 500 miles per day. On the 14th it crossed the space between the

PLATE I.

CHARTS SHOWING LOW TEMPERATURE FOR 1836.



Boston.

New Orleans.

New Bedford.

St Louis.

New York.

Fort Snelling.

Philadelphia.

St Petersburg, Russia.

Mississippi and the Alleghanies; on the 15th it passed over the line of the Alleghanies and went out to sea. The storm, in the course of three days moved about 879 miles, and as soon as it had passed, the temperature, in those regions, successively, rose to its average.

This incident obviously suggested the desirability of investigating the direction and progress of other great atmospheric fluctuations. It is evident that the solution of such problems is intimately connected with the foretelling of the weather by telegraph. I have, therefore, during the past year, devoted much attention to this subject, conducting the enquiry in the method just indicated, viz., collating the observations of this observatory with those given in the weather maps of the War Department.

So far as the past year (1872) is concerned, I have found that the course of the atmospheric fluctuations was in the same direction as above indicated; some of them, however, being much better marked than others. I will select the month of February on account of the great changes it presents, as being the best adapted for an illustration.

Map I represents the thermometric condition of the United States on the 4th of that month. There was a cold wave which had advanced as far as Leavenworth, Omaha, St. Paul; its maximum was at Denver, Cheyenne and Virginia City. In front of this was a warm wave, which had reached Cincinnati, Pittsburgh, New York, Portland. Its maximum passed through Galveston, Cairo, Detroit, Kingston. Again, in front of this was another cold wave, the maximum of which appears to be marked by the line from Key West, through Lake City, to

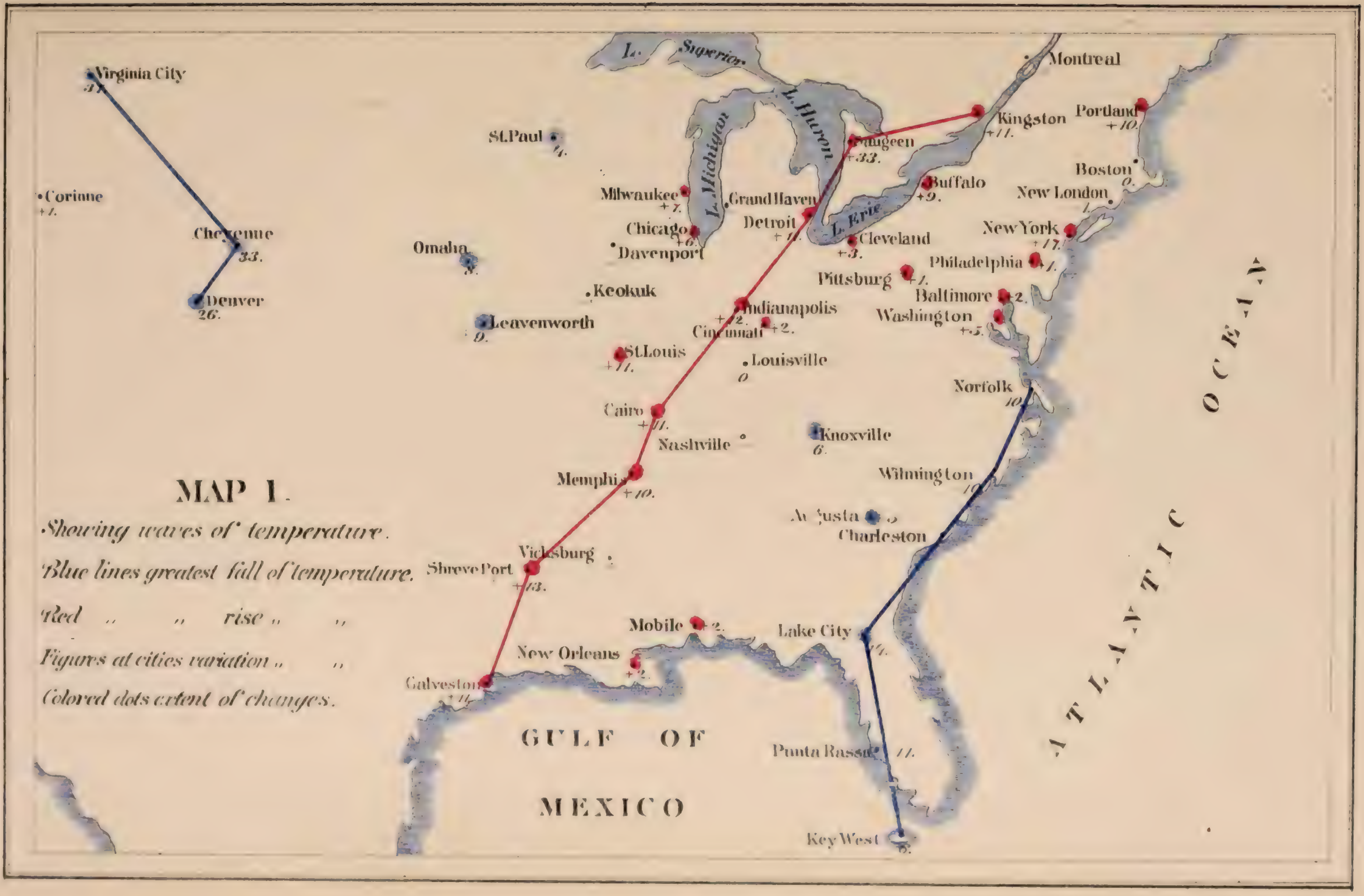
New York. There were, therefore, on that day two cold waves, including between them one of heat.

The following tables present the same results in more particular detail.

If we draw a line from Cheyenne to Charleston, the direction of which is from about W. N. W. to E. S. E., the towns near that line stand in the following order: Cheyenne, Omaha, Keokuk, St. Louis, Cairo, Louisville, Knoxville, Augusta, Charleston; to these may be added, for reasons that will presently appear, Lake City, Punta Rassa and Key West.

I do not take the absolute temperature of the places successively under examination on the day of inquiry, but the change that had occurred in the thermometer during the preceding 24 hours. There may have been a rise or a fall from the preceding day.

In these tables the names of the places are upon the upper line; the first vertical column contains the days of the month, which, as we have said, is February; the numbers in the successive columns under each of the towns show how much thermometrical fluctuation, either in rise or fall, there had been. If, now, we connect by a red line all the adjoining increases, and, in like manner, by a blue all the adjoining diminutions, we perceive that these colored lines do not run straight across the table for the same day or days, but incline downwards as they approach Key West from Cheyenne. Their position and inclinations indicate the successive passage of these fluctuations in a general manner from the north-west to the south-east. They indicate also that the rate of advance of these fluctuations is not always the same. The entire dis-



MAP I.

Showing waves of temperature.

Blue lines greatest fall of temperature.

Red " " rise " "

Figures at cities variation " "

Colored dots extent of changes.

tance is sometimes accomplished in three, and sometimes in not less than seven days. For example, let us take the fall of temperature observed at Cheyenne on the 4th of February, and which was 33 degrees; on the same day, at Omaha, it was 8 degrees; on the 5th, at Keokuk, the fall was 21 degrees, and at St. Louis 12. On the 6th, the fall, both at Cairo and Louisville, was 11 degrees; on the 7th, the fall at Knoxville was 9 degrees, and at Augusta 3 degrees; on the 8th at Charleston, it was 13 degrees; Lake City, 9; Punta Rassa, 2, and on the 9th, at Key West, it was 6 degrees. This atmospheric fluctuation was evidently a cold wave of two days' duration; for, commencing at Cheyenne on the 5th, and running in the same direction to the 10th, at Key West, we have a repetition of similar observations.

Again, on the 6th of the same month, we find, at Cheyenne, a rise of temperature of 10 degrees; on the 7th, at Omaha, of 12 degrees; on the 8th, at Cairo, of 17 degrees; on the 9th, at Augusta, of 6; on the 10th at Charleston, of 2 degrees; on the 11th, at Key West, 7 degrees. From this it might seem that the cold wave described as setting out from Cheyenne on the 4th in the preceding paragraph, was followed by a hot wave setting out on the 6th, and moving in the same direction, and, as the former was experienced at Cheyenne for two days—that is, on the 4th and 5th—so this was experienced at the same place for three days, the 6th, 7th and 8th. The table also shows that of these waves of heat and cold, there were about ten of each kind during the month.

For the sake of convenience, we have thus far used the term heat wave, as though there had actually been a passage of heat, as there is a passage of cold; probably, however, the true mechanism of the phenomena is this, that after the passage of the cold wave, the natural heat of the season resumes its sway.

Had there been at the successive stations self-recording instruments, or had even hourly observations been taken at them, there would have been no difficulty in determining with accuracy the breadth of these cold waves, as well as the rate of their movement.

If lines be drawn perpendicular to the preceding one from Cheyenne to Charleston, on examining the fluctuations of temperature of places near those lines, we shall find that similar ones occur nearly on the same day; this is shown in Table VI, fig. 2, which is constructed for such a line drawn from New Orleans to Montreal. Thus it will be seen that on the 5th of February there was a rise at New Orleans, Nashville, Louisville, Pittsburgh, Buffalo and Montreal, and in like manner, on the 7th, there was a fall at the same points. It is evident that this is what should take place, as the great cold wave advanced upon or left all those places nearly at the same time.

It may be thought that the table exhibits exceptions to this general conclusion, as, for instance, on the 6th of the same month, on which day there seems to have been a rise at New Orleans, a fall at Nashville and Louisville, a rise at Pittsburgh and Buffalo, a fall at Montreal; but this is probably due to slight irregularities in the front or rear of the cold wave.

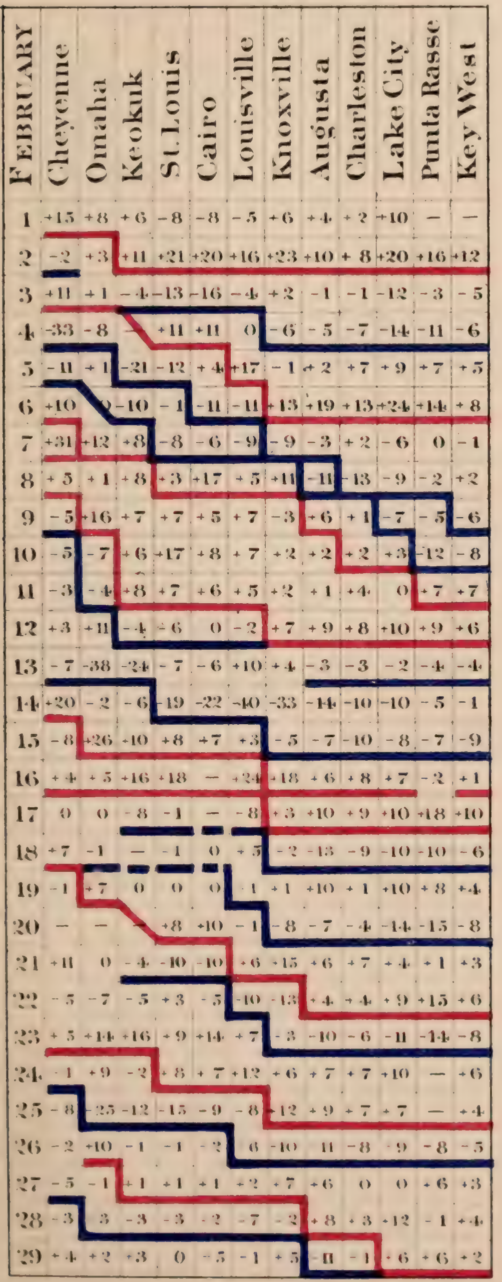
From variations of temperature we turn to variations of pressure—from the thermometer to the barometer.

Proceeding in the same manner as in the foregoing case,

VI.

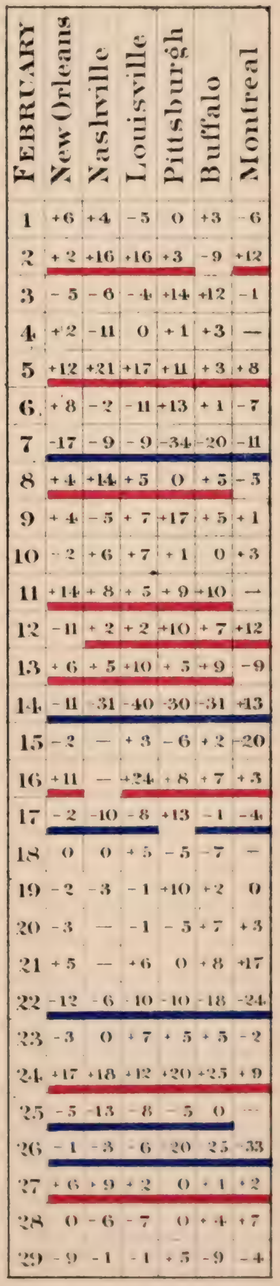
TABLES SHOWING THERMOMETRICAL WAVES
crossing the United States.
FOR
FEBRUARY 1872.

FIG. 1.



FEBRUARY	Cheyenne	Omaha	Keokuk	St. Louis	Cairo	Louisville	Knoxville	Augusta	Charleston	Lake City	Punta Rasse	Key West
1	+15	+8	+6	-8	-8	-5	+6	+4	+2	+10	—	—
2	-2	+3	+11	+21	+20	+16	+23	+10	+8	+20	+16	+12
3	+11	+1	-4	-13	-16	-4	+2	-1	-1	-12	-3	-5
4	-33	-8	—	+11	+11	0	-6	-5	-7	-14	-11	-6
5	-11	+1	-21	-12	+4	+17	-1	+2	+7	+9	+7	+5
6	+10	0	-10	-1	-11	-11	+13	+19	+13	+24	+14	+8
7	+31	+12	+8	-8	-6	-9	-9	-3	+2	-6	0	-1
8	+5	+1	+8	+3	+17	+5	+11	-11	-13	-9	-2	+2
9	-5	+16	+7	+7	+5	+7	-3	+6	+1	-7	-5	-6
10	-5	-7	+6	+17	+8	+7	+2	+2	+2	+3	-12	-8
11	-3	-4	+8	+7	+6	+5	+2	+1	+4	0	+7	+7
12	+3	+11	-4	-6	0	-2	+7	+9	+8	+10	+9	+6
13	-7	-38	-24	-7	-6	+10	+4	-3	-3	-2	-4	-4
14	+20	-2	-6	-19	-22	-40	-33	-14	-10	-10	-5	-1
15	-8	+26	+10	+8	+7	+3	-5	-7	-10	-8	-7	-9
16	+4	+5	+16	+18	—	+24	+18	+6	+8	+7	-2	+1
17	0	0	-8	-1	—	-8	+3	+10	+9	+10	+18	+10
18	+7	-1	—	-1	0	+5	-2	-13	-9	-10	-10	-6
19	-1	+7	0	0	0	-1	+1	+10	+1	+10	+8	+4
20	—	—	—	+8	+10	-1	-8	-7	-4	-14	-15	-8
21	+11	0	-4	-10	-10	+6	+15	+6	+7	+4	+1	+3
22	-5	-7	-5	+3	-5	-10	-13	+4	+4	+9	+15	+6
23	+5	+14	+16	+9	+14	+7	-3	-10	-6	-11	-14	-8
24	-1	+9	-2	+8	+7	+12	+6	+7	+7	+10	—	+6
25	-8	-25	-12	-15	-9	-8	+12	+9	+7	+7	—	+4
26	-2	+10	-1	-1	-2	6	-10	11	-8	-9	-8	-5
27	-5	-1	+1	+1	+1	+2	+7	+6	0	0	+6	+3
28	-3	3	-3	-3	-2	-7	-2	+8	+3	+12	-1	+4
29	+4	+2	+3	0	-5	-1	+5	-11	-1	+6	+6	+2

FIG. 2.



FEBRUARY	New Orleans	Nashville	Louisville	Pittsburgh	Buffalo	Montreal
1	+6	+4	-5	0	+3	-6
2	+2	+16	+16	+3	-9	+12
3	-5	-6	-4	+14	+12	-1
4	+2	-11	0	+1	+3	—
5	+12	+21	+17	+11	+3	+8
6	+8	-2	-11	+13	+1	-7
7	-17	-9	-9	-34	-20	-11
8	+4	+14	+5	0	+5	-5
9	+4	-5	+7	+17	+5	+1
10	-2	+6	+7	+1	0	+3
11	+14	+8	+5	+9	+10	—
12	-11	+2	+2	+10	+7	+12
13	+6	+5	+10	+5	+9	-9
14	-11	-31	-40	-30	-31	+13
15	-2	—	+3	-6	+2	-20
16	+11	—	+24	+8	+7	+3
17	-2	-10	-8	+13	-1	-4
18	0	0	+5	-5	-7	—
19	-2	-3	-1	+10	+2	0
20	-3	—	-1	-5	+7	+3
21	+5	—	+6	0	+8	+17
22	-12	-6	-10	-10	-18	-24
23	-3	0	+7	+5	+5	-2
24	+17	+18	+12	+20	+25	+9
25	-5	-13	-8	-5	0	—
26	-1	-3	-6	20	25	-33
27	+6	+9	+2	0	+1	+2
28	0	-6	-7	0	+4	+7
29	-9	-1	-1	+5	-9	-4

Red Lines represent rise of Temperature.
Blue „ „ fall „ „

VII.

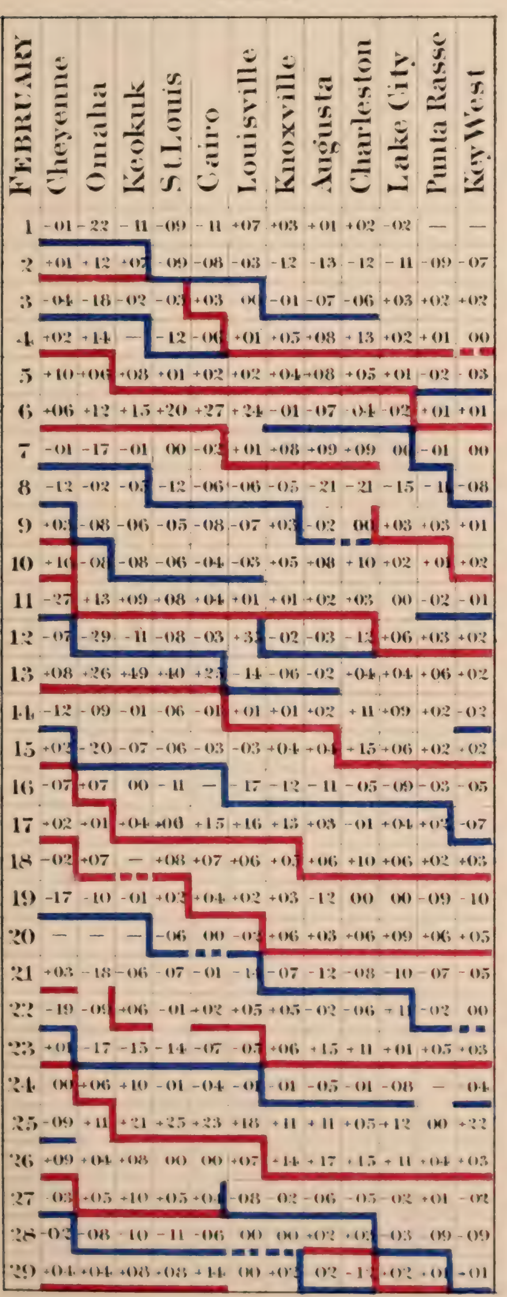
TABLES SHOWING BAROMETRICAL WAVES

crossing the United States.

FOR

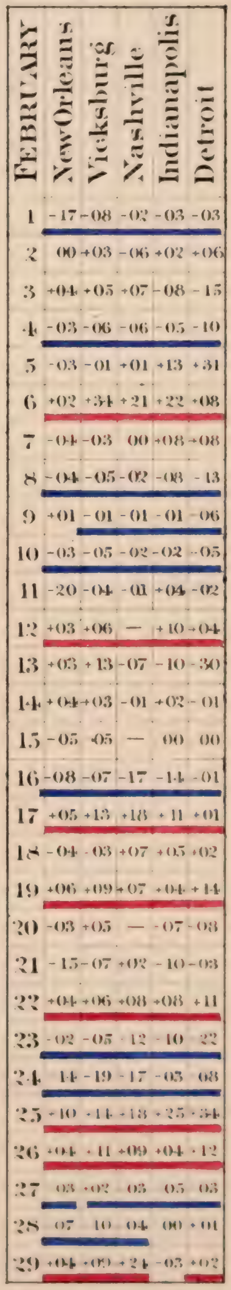
FEBRUARY 1872.

FIG. 1.



FEBRUARY	Cheyenne	Omaha	Keokuk	St Louis	Cairo	Louisville	Knoxville	Augusta	Charleston	Lake City	Punta Rasse	Key West
1	-01	-22	-11	-09	-11	+07	+03	+01	+02	-02	—	—
2	+01	+12	+07	-09	-08	-03	-12	-13	-12	-11	-09	-07
3	-04	-18	-02	-03	+03	00	-01	-07	-06	+03	+02	+02
4	+02	+14	—	-12	-06	+01	+05	+08	+13	+02	+01	00
5	+10	+06	+08	+01	+02	+02	+04	+08	+05	+01	-02	-03
6	+06	+12	+15	+20	+27	+24	-01	-07	-04	-02	+01	+01
7	-01	-17	-01	00	-02	+01	+08	+09	+09	00	-01	00
8	-12	-02	-03	-12	-06	-06	-05	-21	-21	-15	-1[illegible]	-08
9	+03	-08	-06	-05	-08	-07	+03	-02	00	+03	+03	+01
10	+16	-08	-08	-06	-04	-03	+05	+08	+10	+02	+01	+02
11	-27	+13	+09	+08	+04	+01	+01	+02	+03	00	-02	-01
12	-07	-29	-11	-08	-03	+3[illegible]	-02	-03	-1[illegible]	+06	+03	+02
13	+08	+26	+49	+40	+2[illegible]	-14	-06	-02	+04	+04	+06	+02
14	-12	-09	-01	-06	-01	+01	+01	+02	+11	+09	+02	-02
15	+03	-20	-07	-06	-03	-03	+04	+04	+15	+06	+02	+02
16	-07	+07	00	-11	—	-17	-12	-11	-05	-09	-03	-05
17	+02	+01	+04	+06	+15	+16	+13	+03	-01	+04	+02	-07
18	-02	+07	—	+08	+07	+06	+03	+06	+10	+06	+02	+03
19	-17	-10	-01	+03	+04	+02	+03	-12	00	00	-09	-10
20	—	—	—	-06	00	-03	+06	+03	+06	+09	+06	+05
21	+03	-18	-06	-07	-01	-1[illegible]	-07	-12	-08	-10	-07	-05
22	-19	-09	+06	-01	+02	+05	+05	-02	-06	+11	-02	00
23	+01	-17	-15	-14	-07	-05	+06	+15	+11	+01	+05	+03
24	00	+06	+10	-01	-04	-01	-01	-05	-01	-08	—	-04
25	-09	+11	+21	+25	+23	+18	+11	+11	+05	+12	00	+22
26	+09	+04	+08	00	00	+07	+14	+17	+15	+11	+04	+03
27	-03	+05	+10	+05	+04	-08	-02	-06	-05	-02	+01	-02
28	-03	-08	-10	-11	-06	00	00	+02	+03	-03	-09	-09
29	+04	+04	+08	+08	+14	00	+03	02	-1[illegible]	+02	+01	-01

FIG. 2



FEBRUARY	New Orleans	Vicksburg	Nashville	Indianapolis	Detroit
1	-17	-08	-02	-03	-03
2	00	+03	-06	+02	+06
3	+04	+05	+07	-08	-15
4	-03	-06	-06	-05	-10
5	-03	-01	+01	+13	+31
6	+02	+34	+21	+22	+08
7	-04	-03	00	+08	+08
8	-04	-05	-02	-08	-13
9	+01	-01	-01	-01	-06
10	-03	-05	-02	-02	-05
11	-20	-04	-01	+04	-02
12	+03	+06	—	+10	+04
13	+03	+13	-07	-10	-30
14	+04	+03	-01	+02	-01
15	-05	-05	—	00	00
16	-08	-07	-17	-14	-01
17	+05	+13	+18	+11	+01
18	-04	-03	+07	+05	+02
19	+06	+09	+07	+04	+14
20	-03	+05	—	-07	-03
21	-15	-07	+02	-10	-03
22	+04	+06	+08	+08	+11
23	-02	-05	12	-10	22
24	14	-19	-17	-03	08
25	+10	+14	+18	+25	+34
26	+04	+11	+09	+04	+12
27	03	+02	03	05	03
28	07	10	04	00	+01
29	+04	+09	+24	-03	+02

Red Lines represent rise of Barometer.
Blue " " fall " "

and taking in succession the same places on the line from Cheyenne to Charleston, we mark by a red line elevations of the barometer, and by a blue line its depressions. We notice at once, for the same days of the month, that where there is a red line for the thermometer there is a blue one for the barometer, and *vice versa*. The number of alternations from red to blue is the same in each case. It will be seen from the general appearance of the table that there is a correspondence between this and the preceding case, but the low barometrical areas travel from about W.S.W. to E.N.E. This is nothing more than might be anticipated, when we consider the nature of the indications of the thermometer and barometer respectively. The former measures only the temperature of the lower atmospheric strata in which it is placed, but since the air is dilated by heat and condensed by cold, the latter is influenced by the temperatures of all the atmospheric strata directly above it, from the lowest to the uppermost. From this point of view it may be considered, as Jacobi has shown, to officiate as a differential thermometer.

What is it that these tables show? An atmospheric fluctuation occupies several successive days in its passage in a determinate direction, but the places that are on lines at right angles to that direction exhibit changes that are simultaneous. It follows, therefore, that these atmospheric movements are not all cyclonic, or arranged around a central point, many are analogous to those exhibited by the waves of the ocean, long and straight, with maxima and minima lines.

What has just been found in reference to the thermometric indications holds good, in a general way, for great rain storms. These, however, are much influenced by local circumstances.

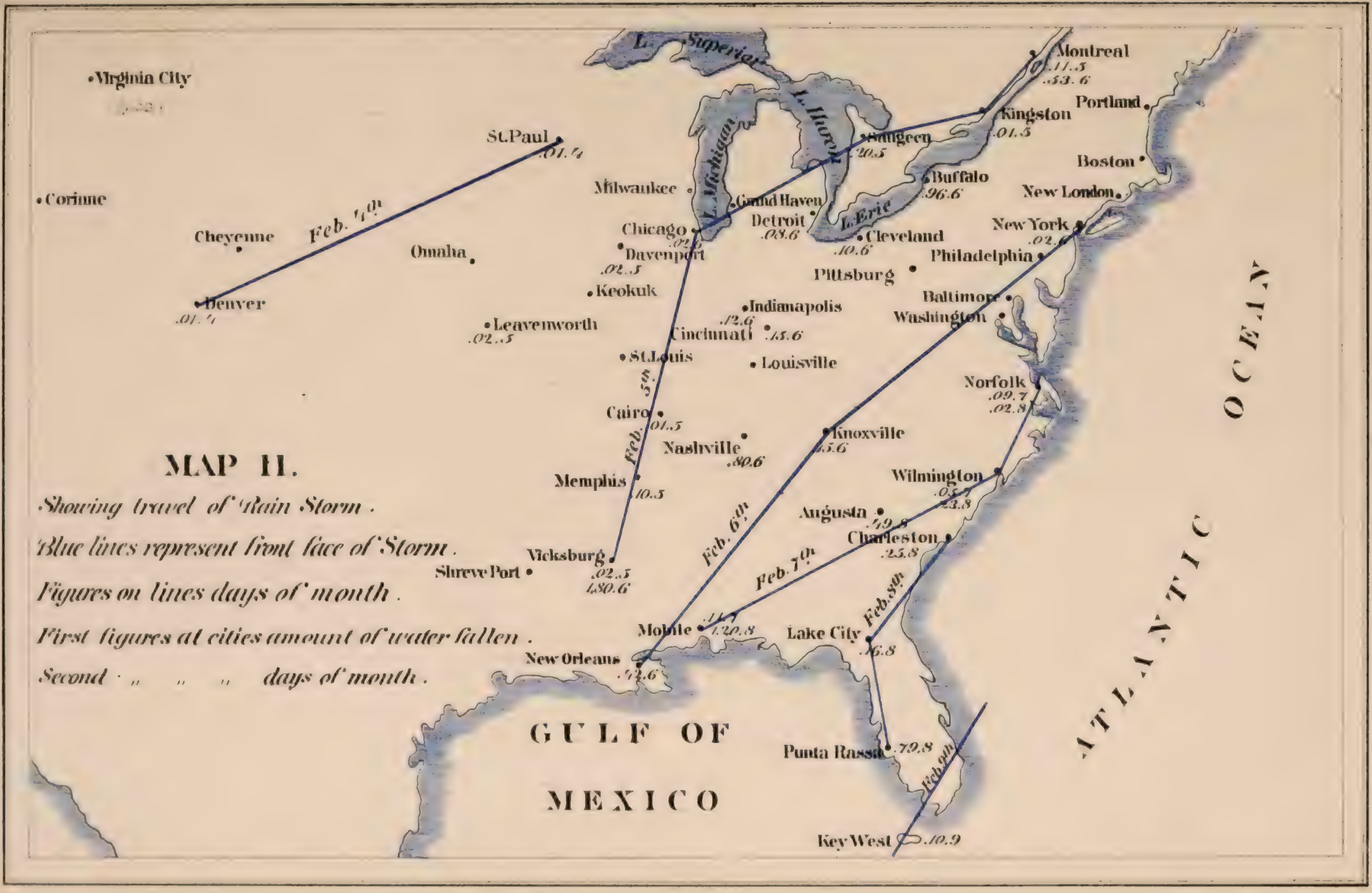
In Map II we have an illustration of the progress of one of these storms, the blue lines indicating its front face. On the 4th February it extended from Denver to St. Paul; on the 5th, it was found simultaneously at Vicksburg, Chicago and Montreal—a very considerable advance. On the 6th it had reached New Orleans, Knoxville and New York. On the 7th it had made another great stride; its front was extended to Mobile, Wilmington and Norfolk. On the 8th it was at Punta Rassa, Lake City and Charleston; on the 9th at Key West, and thence it went out to sea.

I insert, as an interesting companion to the preceding, the map, Plate III, which represents the thermometric movements contained in table VI. In this it will be seen that the front of the cold wave on February 4th, was at Denver, Omaha and St. Paul; on the 5th it had reached St. Louis, Indianapolis, Saugeen; on the 6th, Shreveport, Louisville, Montreal; on the 7th, New Orleans, Augusta, New York and Portland; on the 8th, at Punta Rassa and Wilmington, and on the 9th Key West.

Then the general conclusion to be drawn from these tables and maps is, that these atmospheric disturbances cross the United States in a direction towards the east.

(3.) IS IT POSSIBLE TO TRACE THE PASSAGE OF AMERICAN STORMS ACROSS THE ATLANTIC, AND PREDICT THE TIME OF THEIR ARRIVAL ON THE EUROPEAN COAST.

If these meteorological waves cross the United States, why should they not also continue their course and cross the Atlantic ocean? With a view of answering this inquiry, I have collated the registers produced by the instruments at this



MAP II.

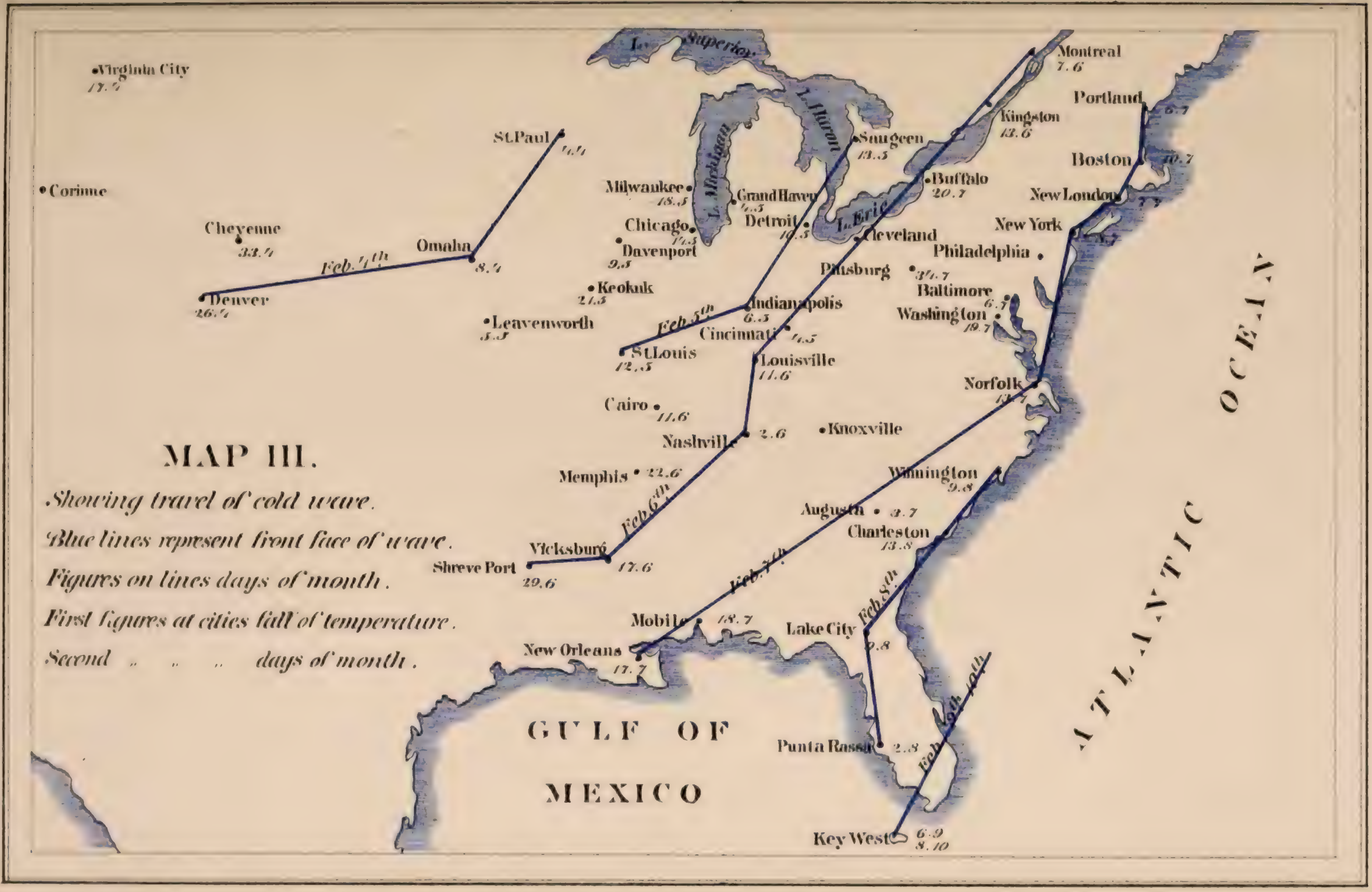
Showing travel of Rain Storm.

Blue lines represent front face of Storm.

Figures on lines days of month.

First figures at cities amount of water fallen.

Second " " " days of month.



MAP III.

Showing travel of cold wave.

Blue lines represent front face of wave.

Figures on lines days of month.

First figures at cities fall of temperature.

Second " " " days of month.

Observatory with those obtained at Valencia and Falmouth, as given in the *Quarterly Weather Report*, published by the Meteorological Office of Great Britain, the distance under consideration being about 3,100 miles. From this it appears that there are many atmospheric waves which do cross the Atlantic, and that the time of their passage may, within certain limits, be predicted. If, in the case of an easterly wind which is traveling about 200 miles in twenty-four hours, we find the exact time of the lowest reading of the barometer, and ascertain its speed for 24 hours before and 24 hours after that time, the mean of these two numbers will give the rate of the storm in 24 hours. If 4,200 be divided by this last number, the quotient will express the number of days required by the storm to cross from New York to Falmouth or Valencia.

If the above statement can be shown to hold good in the case of storms for two or three years, the result would be of great value to home and foreign commerce. It would indicate whether ship captains about to leave port might be delayed by approaching foul weather, whether they could get well out to sea before its occurrence, in what part of the ocean they might expect to encounter it, and what would be its duration.

As an explanation of the following tables, I will take the first example that they offer:

On the 4th of October, 1869, there occurred a low barometer (at this Observatory) at 1 P. M. In 24 hours previously the wind had made 313 miles, in the 24 subsequently it made 286 miles, the mean of these numbers being 299. This divided into 4,200, gives the time of passage across the Atlantic, 14 days, and the date of its arrival at Falmouth, October 18th. The actual time of its arrival, as shown in the English Weather Reports, was on that day.

VIII.

TABLE *showing the computed and actual times of the Passage of Storms across the Atlantic.*

1869.

Date of Storm at New York.	Time of Lowest Barometer.	24 hours before. Miles.	24 hours after. Miles.	Mean Miles.	Number of days to cross.	Date of predicted arrival.	Date of actual arrival at Falmouth.
Oct. 4	1 P. M.	313	286	299	14	Oct. 18	Oct. 18
“ 15	12 M.	308	289	298	14	“ 27	“ 26, 27
“ 16	3 A.M.	97	359	228	18	Nov. 3	Nov. 3, 4, 5
“ 23	5 P. M.	159	315	237	17	“ 9	“ 8
Nov. 17	1 P. M.	320	344	332	12.	“ 29	“ 29
“ 20	7 A. M.	514	229	371	11	Dec. 1	“ 30
Dec. 1	1 A. M.	187	421	304	13	“ 14	Dec. 14, 15
“ 6	4 P. M.	312	448	380	11	“ 17	“ 17, 18
“ 16	1 P. M.	370	140	255	16	Jan. 1, 1870	Jan. 1, 1870
“ 18	9 P. M.	355	387	371	11	Dec. 29	Dec. 29, 30
“ 22	9 P. M.	289	291	290	14	Jan. 6	Jan. 8
“ 28	2 P. M.	223	249	236	17	“ 14	“ 14

IX.

TABLE *showing the computed and actual times of the Passage of Storms across the Atlantic.*

1870.

Date of Storm at New York.	Time of Lowest Barometer.	24 hours before. Miles.	24 hours after. Miles.	Mean Miles.	Number of days to cross.	Date of predicted arrival.	Date of actual arrival at Falmouth.
Jan. 1	12 P. M.	205	555	380	11	Jan. 12	Jan. 11, 12
“ 8	1 P. M.	166	289	228	18	“ 26	“ 26 to 31
“ 15	9 P. M.	300	184	242	17	Feb. 1	Feb. 1
“ 17	11 P. M.	215	180	197	20	“ 6	“ 6
“ 25	2 P. M.	305	265	285	14	“ 7	“ 7
“ 29	9 P. M.	167	339	253	16	“ 14	“ 13, 14
Feb. 1	3 A. M.	258	402	330	12	“ 13	“ 13
“ 12	2 P. M.	135	385	260	16	“ 28	“ 27, 28
“ 18	9 P. M.	480	458	469	9	“ 27	“ 27, 28
“ 24	3 A. M.	109	413	261	16	March 12	Mar. 12
“ 27	9 P. M.	366	207	286	15	“ 14	“ 15
March 13	9 A. M.	532	323	427	10	“ 23	“ 22
“ 16	11 A. M.	390	352	371	11	“ 27	“ 25, 26
“ 28	3 A. M.	690	141	415	10	April 7	April 8, 9
April 5	4 A. M.	355	259	307	13	“ 18	“ 18
“ 12	4 A. M.	527	378	452	9	“ 21	“ 21, 22
“ 18	2 P. M.	435	219	327	13	May 1	May 1
“ 25	4 A. M.	197	255	226	17	“ 12	“ 11, 12
June 11	2 P. M.	367	128	247	17	June 28	June 28
Sept. 18	5 A. M.	355	293	324	13	Oct. 1	Oct. 1, 2
“ 30	12 P. M.	357	189	273	15	“ 15	“ 15, 16
Oct. 3	2 P. M.	366	108	237	17	“ 20	“ 18, 19
“ 6	oh. om. A. M.	119	334	226	18	“ 24	“ 23, 24
“ 28	2 A. M.	217	287	252	16	Nov. 13	Nov. 13, 14
“ 31	5 A. M.	243	367	305	13	“ 13	“ 13, 14
Nov. 3	12 M.	170	390	280	15	“ 18	“ 18, 19
“ 9	4 P. M.	185	429	307	13	“ 22	“ 22, 23
“ 14	4 A. M.	276	228	252	16	“ 30	“ 30
“ 22	12 M.	533	348	440	9	Dec. 1	Dec. 1
“ 26	4 A. M.	147	280	213	19	“ 15	“ 14, 15
Dec. 6	5 A. M.	197	303	250	17	“ 23	“ 24
“ 8	12 M.	130	392	261	16	“ 24	“ 24
“ 12	9 P. M.	334	115	225	18	“ 30	“ 31
“ 14	2 P. M.	139	354	264	17	“ 31	Jan. 1, 2, 1871
“ 18	7 A. M.	225	277	251	17	Jan. 4, 1871	“ 4, 5
“ 20	5 A. M.	135	261	198	21	“ 10	“ 9
“ 23	2 P. M.	185	347	266	16	“ 8	“ 8, 9
“ 29	5 A. M.	165	366	265	16	“ 14	“ 14, 15
“ 31	1 P. M.	232	257	245	17	“ 17	“ 16, 17

X.

TABLE *showing the computed and actual times of the Passage of Storms across the Atlantic.*

1871.

Date of Storm at New York.	Time of Lowest Barometer.	24 hours before. Miles.	24 hours after. Miles.	Mean Miles.	Number of days to cross.	Date of predicted arrival.	Date of actual arrival at Falmouth.
Jan. 16	6 A. M.	196	292	244	17	Feb. 2	Feb. 2, 3
" 22	1 A. M.	144	522	333	12	" 3	" 4, 5
" 27	1 A. M.	335	207	271	15	" 11	" 10, 11, 12
Feb. 12	4 A. M.	105	319	212	20	March 4	Mar. 5
" 18	2 P. M.	246	298	272	15	" 5	" 5, 6
March 6	1 A. M.	124	253	188	22	" 28	" 28
" 12	4 P. M.	184	243	213	20	April 1	April 2, 3
" 21	4 P. M.	229	255	243	17	" 7	" 6, 7
" 23	5 P. M.	120	399	259	16	" 8	" 7
" 27	7 A. M.	217	313	265	15	" 11	" 11
April 2	5 A. M.	355	197	276	15	" 17	" 15 to 18
" 11	12 P. M.	252	223	237	17	" 28	" 28, 29
" 27	12 P. M.	328	280	304	13	May 10	—
May 7	3 A. M.	152	339	246	17	" 24	May 24
" 13	3 P. M.	135	300	218	19	June 1	June 1
" 17	4 A. M.	164	234	199	21	" 7	" 7
" 22	6 P. M.	94	219	157	26	" 17	" 17

XI.

TABLE *showing the computed and actual times of the Passage of Storms across the Atlantic.*

1872.

Date of Storm at New York.	Time of Lowest Barometer.	24 hours before. Miles.	24 hours after. Miles.	Mean Miles.	Number of days to cross.	Date of predicted arrival.	Date of actual arrival at Falmouth.
Jan. 4	4 A. M.	252	152	202	20	Jan. 24	Jan. 24
" 11	12 P. M.	261	144	202	20	" 31	" 31
" 23	5 A. M.	258	263	260	16	Feb. 8	Feb. 9
Feb. 4	2 A. M.	518	337	427	10	" 14	" 14
" 11	3 A. M.	383	65	224	18	" 29	" 29
" 21	9 P. M.	162	385	273	15	March 7	Mar. 7
" 25	4 A. M.	107	330	218	20	" 16	
March 2	5 P. M.	283	279	281	15	" 17	" 13 to 19
" 4	5 P. M.	228	569	398	10	" 14	
" 10	2 P. M.	272	207	239	17	" 27	" 27
" 15	5 A. M.	82	504	293	14	" 29	" 29
" 19	7 A. M.	225	357	291	14	April 2	April 2
" 23	4 P. M.	176	286	231	18	" 10	" 10
" 27	4 A. M.	276	190	233	18	" 14	——
" 31	4 P. M.	291	293	292	14	" 14	——
April 16	2 A. M.	106	398	252	17	May 3	May 3
" 26	6 P. M.	262	244	253	16	" 12	" 13
June 5	4 A. M.	204	274	239	17	June 22	June 21

The table for 1869 commences in October, this being the month in which the self-recording instruments of this observatory were sufficiently advanced to furnish reliable registers. For the year 1870, we have a complete set of observations, both from our own and the English instruments. For the years 1871–2 I have compared our results with those of the quarterly weather reports from England, as far as I have received them.

It will be noticed in the tables that sometimes storms leaving this side of the Atlantic several days apart, arrive in the British islands on the same day. When this is the case, the storm there is generally a very severe one. There are also instances in which the last storm overpasses the first by several days. It will also be observed that there are variations in the track of these atmospheric disturbances, depending on the course they are pursuing when they leave the American coast, and this will determine the point at which they will be most severely felt on reaching Europe.

We are therefore brought by the foregoing discussion to this interesting conclusion, that out of 86 atmospheric disturbances expected to cross the Atlantic, only 3 seem to have failed.

Annexed, as in former reports, are annual and monthly tables for the year 1872.

All which is respectfully submitted.

DANIEL DRAPER,

Director.

XII.

TABLE *showing the Heights of the Barometer, monthly, for the Year* 1872, *reduced to Freezing Point, Fahrenheit.*

MONTHS, 1872.	MEAN AT 7 A. M.	MEAN AT 2 P. M.	MEAN AT 9 P. M.	MONTH MEAN.	MAXIMUM.		MINIMUM.		DIFFERENCE OR RANGE.
					HEIGHT.	DATE.	HEIGHT.	DATE.	
January...	29.927	29.893	29.918	29.912	30.442	9 A.M., 2d.	29.496	5 A.M., 28th.	946
February..	29.882	29.853	29.877	29.872	30.490	7 P.M., 7th.	29.280	2 A.M., 4th.	1.210
March....	29.915	29.851	29.885	29.883	30.408	9 A.M., 24th.	29.260	4.20 P.M., 31st.	1.148
April.....	29.932	29.891	29.918	29.914	30.344	9.30 A.M., 30th.	29.498	3 A.M., 19th.	846
May.	29.864	29.806	29.840	29.836	30.188	9 P.M., 14th.	29.404	4 P.M., 19th.	784
June......	29.857	29.828	29.841	29.842	30.248	9.30 A.M., 18th.	29.430	4 A.M., 5th.	818
July.	29.853	29.829	29.844	29.842	30.234	9 A.M., 9th.	29.677	7 A.M., 22d.	557
August...	29.921	29.904	29.919	29.915	30.284	9 A.M., 5th.	29.558	5 A.M., 30th.	726
September	29.932	29.907	29.928	29.922	30.320	9 P.M., 10th.	29.684	4 P.M., 19th.	636
October...	29.989	29.943	29.979	29.970	30.500	9 A.M., 29th.	29.454	5 A.M., 14th.	1.046
November	29.957	29.909	29.945	29.937	30.464	11 P.M., 17th.	29.466	4 P.M., 7th.	998
December	30.023	29.983	30.024	30.010	30.448	10 A. M., 30th.	29.440	3 P.M., 26th.	1.008

Year mean at 7 A.M.	29.921
" 2 P.M.	29.883
" 9 P.M.	29.909
Mean for the year	29.904

Maximum for the year	30.500 at 9 A.M., October 29th
Minimum for the year	29.260 at 4.20 P.M., March 31st
Difference or Range	1.240

XIII.

TABLE *showing the state of the Thermometer, monthly, for the year* 1872.

MONTHS, 1872.	MEAN AT 7 A. M.	MEAN AT 2 P. M.	MEAN AT 9 P. M.	MONTH MEAN	MAXIMUM.		MINIMUM.		DIFFERENCE OR RANGE
					DEGREES.	DATE.	DEGREES.	DATE.	
January...	25.65	31.93	28.88	28.78	50.5	4.15 P.M., 13th.	7.0	10 A. M., 29th.	43.5
February..	25.01	34.74	29.89	29.85	58.2	3.20 P.M., 24th.	10.0	7 A. M., 15th.	48.2
March....	25.90	34.49	31.21	30.56	62.0	3.20 P.M., 29th.	3.0	9.30 A. M., 5th.	59.0
April......	43.14	55.06	50.92	49.35	83.0	4 P. M., 26th.	29.0	5 A. M., 23d.	54.0
May......	55.53	67.85	61.05	61.48	89.0	3 P. M., 10th.	41.0	5 A. M., 5th.	48.0
June......	65.38	76.94	71.45	71.22	94.0	5.30 P.M., 30th.	52.0	7 A. M., 2d.	42.0
July......	72.68	83.27	76.58	77.47	95.5	3 P. M., 2d.	62.0	12 P. M., 31st.	33.5
August ...	71.44	80.77	74.56	75.55	93.0	4 P. M., 14th.	53.0	3 A. M., 31st.	40.0
September	61.83	71.47	65.77	66.44	93.0	4 P. M., 8th.	46.7	5.20 A. M., 4th.	46.3
October...	48.59	58.67	52.78	53.21	76.0	2 P. M., 6th.	36.0	6.30 A.M., 20th.	40.0
November	37.52	44.65	40.97	40.99	59.5	7 P. M., 12th.	14.0	4 A. M., 30th.	45.5
December	24.32	29.20	26.74	26.70	48.7	1 P. M., 15th.	3.5	10.40 P.M., 22d.	45.2

Year mean at 7 A. M.	46.41
" 2 P. M.	55.75
" 9 P. M.	50.90
Mean for the year	51.02

Maximum for the year	95.5 at 3 P. M., July 2d.
Minimum for the year	3.0 at 9.30 A.M., March 5th.
Difference or Range	92.5

XIV.

TABLE *showing the state of the Wet Bulb Thermometer, monthly, for the year* 1872.

MONTHS 1872.	MEAN AT 7 A. M	MEAN AT 2 P. M	MEAN AT 9 P. M.	MONTH MEAN.	MAXIMUM.		MINIMUM.		DIFFERENCE OR RANGE.
					DEGREES.	DATE.	DEGREES	DATE.	
January...	24.74	29.72	27.40	27.31	44	10 A.M., 1st.	7.0	10 A.M., 29th.	37.0
February .	24.63	31.84	28.60	28.35	47	8.15 A.M., 25th.	10.0	7 A.M., 15th.	37.0
March. . .	25.09	31.72	29.64	28.81	50	3.30 P.M., 29th.	3.0	9.30 A.M., 4th.	47.0
April	40.07	45.53	44.45	43.35	65.5	4.15 P.M., 26th.	28.0	2 A.M., 23d.	37.5
May.....	50.72	56.88	54.27	53.95	69	3 P.M., 10th.	40.0	5 A.M., 5th.	29.0
June	60.73	65.48	64.24	63.48	76	6 P.M., 29th.	46.0	7 A.M., 2d.	30.0
July......	67.03	71.04	69.27	69.31	79.5	5.30 P.M., 14th.	56.0	5 A.M., 23d.	23.5
August....	67.62	70.79	68.63	69.01	80.5	4 P.M., 14th.	47.7	3 A.M., 31st.	32.8
September	57.56	62.96	60.55	60.35	81.5	4 P.M., 8th.	42.5	5.30 A.M., 4th.	39.0
October...	44.86	50.35	47.37	47.52	63.5	2 P.M., 6th.	31.7	4.25 A.M., 20th	36.8
November	34.78	39.10	37.02	36.96	57.0	7 P.M., 12th.	13.7	4 A.M., 30th.	43.3
December	23.11	27.13	25.53	25.25	42.5	1.35 P.M., 15th.	3.5	10.40 P.M., 2d.	39.0

Year mean at 7 A. M. 43.46
" 2 P. M. 48.54
" 9 P. M. 46.42

Mean for the year.................................. 46.14

Maximum for the year.............................. 81.5 at 4 P. M. September 8th.
Minimum for the year.............................. 3.0 at 9.30 A.M., March 4th.

Difference or Range.............................. 78.5

XV.

Table *showing the Duration and Depth of Rain and Snow, monthly, during the year* 1872.

RAIN.

Months.—1872.	No. of Days in which Rain Descended.	Duration.			Depth in Inches.	Total Depth in Inches.	Depth of Water Produced in Inches.	Remarks.
		Days.	Hours.	Minutes.				
January	4	0	23	0	1.73	1.73		
February	5	0	19	35	0.92	2.65		
March	8	2	3	30	2.71	5.36		
April	8	1	23	45	2.17	7.53		
May	11	1	12	50	2.68	10.21		
June	11	3	1	0	2.93	13.14		
July	12	2	6	5	7.83	20.97		
August	13	2	7	45	6.29	27.26		
September	6	1	19	35	2.95	30.21		
October	12	3	0	25	3.35	33.56		
November	8	3	8	30	3.74	37.30		
December	4	0	19	20	0.31	37.61		
						4.83	....	Snow water.
Total	105	24	1	20	37.61	....	42.49	

SNOW.

Months.—1872.	No. of Days.	Days.	Hours.	Minutes.	Depth in Inches.	Total Depth in Inches.	Depth of Water Produced in Inches.	Remarks.
January	4	0	20	45	1.75	1.75	.15	
February	1	0	11	5	3.00	4.75	.37	
March	7	2	3	45	5.12	9.87	1.03	
April	1	0	5	45	Melted as it fell.	.....	.12	
November	2	0	9	45	3.50	13.37	.34	
December	10	2	22	5	27.00	40.37	2.87	
Total	25	7	1	10	40.37	....	4.88	

XVI.

TABLE *showing the Velocity of the Wind, and Prevailing Winds, during the year* 1872.

MONTHS—1872.	MILES.	DAILY MEAN.	HOURLY MEAN.	PREVAILING WINDS.
January	6,413	206.8	8.62	West.
February	6,767	233.3	9.72	West.
March	8,303	267.8	11.15	West.
April	6,119	203.9	8.50	West.
May	4,889	157.7	6.57	Southeast.
June	4,141	138.0	5.74	Southwest.
July	4,031	130.0	5.41	West.
August	3,540	114.1	4.75	Southeast.
September	3,915	130.5	5.43	Southeast.
October	5,310	171.2	7.13	West-northwest.
November	5,129	170.9	7.12	West.
December	6,575	212.1	8.83	West.

The total distance traveled by the wind during the year was 65,132 miles.

The prevailing wind was west.

XVII.

TABLE *showing the Points from which the Wind came during the Year* 1872.

Points.	January.			February.			March.			April.			May.			June.			July.			August.			Septem'r.			October.			Novemb'r.			December			Total.
	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	
N	1	1	1	3	3	4	2	2	1	1	2	0	0	1	0	1	2	1	0	0	0	2	1	1	0	1	0	2	1	1	1	1	1	0	1	2	41
NNE	1	0	1	2	1	2	2	0	2	1	1	1	0	0	2	1	1	0	2	1	1	0	1	0	1	2	1	4	2	1	0	1	2	0	1	0	38
NE	0	2	1	1	3	2	1	4	2	1	1	2	1	0	0	3	1	1	1	0	0	0	2	0	0	0	0	2	2	2	0	1	0	3	1	1	41
ENE	0	0	1	1	1	0	2	0	0	1	0	0	1	1	4	2	0	1	1	1	1	0	0	0	1	0	0	0	2	2	1	1	0	1	1	1	28
E	0	2	0	0	0	0	0	1	1	1	0	0	0	0	1	1	2	1	1	1	2	3	3	0	2	1	3	1	1	0	1	2	0	1	2	0	34
ESE	0	0	0	0	0	1	1	1	2	0	0	2	0	2	2	3	0	5	1	2	2	1	2	4	2	4	4	0	0	1	0	1	1	0	0	2	46
SE	0	1	1	1	0	1	0	1	2	2	7	4	5	7	3	1	5	5	0	5	4	1	5	8	5	6	6	2	5	3	3	3	3	0	0	0	105
SSE	0	0	1	0	0	1	0	0	0	0	0	2	0	1	1	0	2	3	0	1	3	0	2	4	0	0	3	1	1	1	0	0	1	1	0	1	30
S	0	0	2	0	0	0	0	1	1	1	1	1	1	0	1	1	0	1	1	3	4	0	4	6	0	2	1	0	1	0	0	1	0	0	0	1	35
SSW	1	0	1	1	2	2	2	1	1	2	1	2	1	1	0	1	1	2	1	1	1	7	0	0	1	2	2	1	0	1	0	1	0	0	1	0	41
SW	3	1	2	3	3	1	2	2	1	4	4	2	2	3	2	4	5	2	5	0	2	5	2	0	4	1	1	5	3	2	5	1	3	1	2	0	88
WSW	5	5	5	2	1	2	2	2	2	4	1	1	2	2	0	2	3	5	3	4	4	4	2	2	4	1	2	2	4	4	1	6	6	3	3	2	103
W	9	7	6	5	5	5	9	5	4	6	6	4	4	4	6	4	2	1	7	6	3	3	2	2	3	6	2	3	2	3	5	7	7	5	6	11	175
WNW	1	4	2	3	5	5	3	8	5	3	3	2	7	4	3	5	3	0	5	5	3	3	3	1	2	1	3	5	4	6	9	2	2	6	4	4	134
NW	5	7	3	5	5	3	2	1	4	3	3	7	5	3	3	1	2	1	3	1	1	1	2	2	4	2	1	3	3	4	2	2	3	5	7	5	114
NNW	5	1	4	2	0	0	3	2	3	0	0	0	2	2	3	0	1	1	0	0	0	1	0	1	1	1	1	0	0	0	2	0	1	5	2	1	45

Prevailing Wind for the Year 1872 was West.

XVIII.

TABLE *showing the Comparison of Years.*

	1868.	1869.	1870.	1871.	1872.
BAROMETER:					
Highest—inches	30.752	30.625	30.572	30.610	30.500
" " date	Feb. 24—7 A.M.	Dec. 9—11 A.M.	Oct. 24—9 A.M.	Jan. 19—9 A.M.	Oct. 29—9 A.M.
Greatest mean monthly pressure	30.165	30.068	30.035	30.117	30.010
" " " " date.	February.	December.	September.	January.	December.
Lowest—inches	29.070	28.932	28.988	29.264	29.260
" " date	Dec. 7—9 P.M.	Feb. 4—7 A.M.	Jan. 2—4 P.M.	Feb. 18—2 P.M.	March 31—4.20 P.M.
Least mean monthly pressure	29.958	29.723	29.812	29.797	29.830
" " " " date	December.	May.	February.	April.	May
Mean for the year	30.054	29.909	29.903	29.935	29.904
THERMOMETER:					
Highest—degrees	95.5	94.7	94.0	92.0	95.5
" " date	July 4—2.30 P.M.	Aug. 21—2 P.M.	June 28—4 P.M.	May 30—5 P.M.	July 2—3 P.M.
Mean of the warmest month	76.0	72.8	76.0	73.6	77.4
" " " " date	July.	July.	July.	August.	July.
Lowest—degree	1.4	4.0	9.5	−2	3.0
" " date	Feb. 23—4.35 A.M.	Mar. 1—4 A.M.	Feb. 22—4 A.M.	Dec. 21—8 A.M.	March 5—9.30 A.M.
Mean for the year	48.9	51.4	53.5	51.1	51.0
RAIN:					
Amount—inches	50.42	40.50	39.45	49.42	42.49
SNOW:					
Amount (as water)—inches	8.05	6.23	2.87	2.64	4.88

JANUARY, 1872.

Date.	Barometer (Thermometer attached).						Thermometer (Shade in open air).						Wind.					Clouds.			Rain and Snow.			
	7 A.M.		2 P.M.		9 P.M.		7 A.M.		2 P.M.		9 P.M.		7 A.M.	2 P.M.	9 P.M.									
	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches
1	30.072	43	30.210	45	30.340	36.7	43	42.5	45	41	36.7	33.2	WSW	NW	NNW	104	4.2	9	8	0				
2	30.400	27.5	30.380	32.5	30.410	30	27.5	27.5	32.5	32.5	30	28	NNE	E	ENE	222	5.5	0	0	0				
3	30.340	28	30 224	32.5	30.060	35.2	28	28	32.5	32.5	35.2	35.2	NW	NE	NE	215	7.2	10	10	10	2 P.M.	12 P.M.	.75	
4	29.832	36	29.906	40	29.934	36	36	36	40	38.5	36	35	NW	N	N	180	4	9	8	7	oh. om. A.M.	5.15 A.M.	.50	
5	29.888	34.5	29.850	40.5	29.820	32	34.5	33.5	40.5	35.5	32	30	NNW	NW	W	249	11.7	5	7	0				
6	29.800	35	29.800	40.5	29.968	29.5	35	31	40.5	35	29.5	26.7	W	W	NW	270	10.7	4	9	0				
7	30.170	14.5	30.220	18.7	30.262	15.5	14.5	14.5	18	18.7	15.5	15.5	NW	NW	NW	392	11	0	10	0				
8	30.202	12.2	30.206	22	30.184	23.5	12.2	12.2	22	22	23.5	23	NNW	NNW	NNW	105	1.2	7	9	7				
9	30.110	23.5	30.058	40	30.038	32.5	23.5	21.7	40	31	32.5	30.5	WNW	WNW	WSW	136	4.2	5	2	0				
10	30.036	30.5	30.030	39.5	30.030	33	30.5	30	39.5	34	33	31	W	WNW	W	100	2	2	0	2				
11	30.014	28.5	29.920	41.5	29.718	39	28.5	28.5	41.5	38.5	39	38.5	W	SE	SSE	53	1.2	3	5	5				
12	29.778	38	29.870	46.5	29.856	41	38	34	46.5	37	41	34	WSW	W	SW	254	8	3	0	3				
13	29.734	39	29.658	45	29.706	40.5	39	33.5	45	37.5	40.5	34.5	SSW	SW	WNW	126	1.5	9	4	6				
14	29.804	28	29.898	21.5	30.000	12	28	26.5	21.5	21.5	12	12	NNW	NW	NW	318	13.2	9	0	0				
15	30.018	20	29.950	22.5	29.922	23	10	10	22.5	22.5	23	23	NNW	NW	NNW	158	2.5	3	8	9				
16	29.918	23.5	29.894	25.5	29.934	24.5	23.5	23.5	25.5	25.5	24.5	24.5	N	NE	NNE	122	9.5	10	8	8	8.30 A.M.	3 P.M.	.03	.25
17	29.904	23	29.932	32	29.988	23	23	23	32	31.2	23	23	NNW	NW	WNW	318	6.5	7	8	2				
18	30.022	20	29.980	29	30.050	30	20	20	29	28.7	30	30	W	WSW	SW	263	5.7	4	5	9				
19	30.078	31.5	29.990	34.5	29.714	41.5	31.5	30	34.5	33.5	41.5	40	WSW	E	SE	139	4.2	10	10	10	2 A.M. 4.45 P.M.	4.30 A.M. 12 P.M.	.02 .46	.25
20	29.628	39.5	29.686	43	29.778	38.5	30.5	37.5	43	37	38.5	34.5	W	WSW	WSW	176	7.2	2	7	9	oh. om. A.M.	oh. 30 m. A.M.	.02	
21	29.750	30	29.696	40	29.820	36	36	33	40	34.7	36	31.5	SW	W	W	140	2.5	9	5	3				
22	29.900	29	29.828	36	29.748	35.5	29	29	36	33.5	35.5	32	SW	WSW	S	204	4	0	5	7				
23	29.558	34.7	29.560	33	29.630	27.7	34.7	32	38	36	27.7	27.5	WSW	W	NNW	219	9.7	8	4	3				
24	29.68	14.5	29.714	24	29 800	20.5	14.5	14.5	24	24	20.5	20.5	NW	WNW	WSW	327	8	0	8	0				
25	29.840	17.5	29.716	21.5	29.696	20.5	17.5	17.5	21.5	21.5	20.5	20.5	W	W	WSW	330	11	5	4	0				
26	29.724	14	29.640	24.5	29.640	23.5	14	14	24.5	24.5	23.5	23.5	W	W	WSW	230	6.2	3	3	4				
27	29.702	24	29.694	32	29.602	33.5	24	24	32	32	33.5	33.5	SW	WSW	S	103	1.2	7	0	10				
28	29.500	27	29.540	30.5	29.590	35.7	27	27	30.5	30.5	35.7	35.7	NW	NW	SSW	55	0.7	10	10	8	1.45 A.M.	11.30 A.M.	.10	1.25
29	29.584	10.7	29.714	12.5	30.036	15	16.7	16.7	12.5	12.5	15	15	W	WNW	W	374	24	4	0	2	5 A.M.	7 A.M.		Slight.
30	30.094	8	30.130	18	30.146	14.5	8	8	18	18	14.5	14.5	W	W	W	232	3.7	0	0	0				
31	30.104	8	30.024	20.7	30.076	16	8	8	20.7	20.7	16	16	WSW	WSW	W	107	2.7	5	4	0				

FEBRUARY, 1872.

DATE.	BAROMETER (Thermometer attached).						THERMOMETER (Shade in open air).						WIND.					CLOUDS.			RAIN AND SNOW.			
	7 A. M.		2 P.M.		9 P.M.		7 A.M.		2 P.M.		9 P.M.		7 A.M.	2 P.M.	9 P.M.									
	Observed Height.	Thermometer.	Observed Height.	Thermometer.	Observed Height.	Thermometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches
1	30.10[illegible]	13	30.220	24	30.24[illegible]	22	13	13	24	24	22	22	W	W	SSW	135	1.7	0	0	0				
2	30.[illegible]	19	30.332	29	30.335	24	19	19	29	28.2	24	24	WSW	N	N	84	0.5	0	2	5				
3	30.085	23.5	29.730	27.5	29.[illegible]	27.5	23.5	23.5	27.5	27.5	27.5	27.5	NE	NE	N	443	15.2	10	10	10	5.15 A.M.	4.20 P.M.	.37	3.00
4	29.406	27	29.6[illegible]	33.5	29.8[illegible]	28.5	27	27	33.5	33.5	28.5	28.5	NW	W	WSW	410	14.5	4	4	0				
5	30.050	27	30.170	41.5	30.234	30.7	27	27	41.5	36	30.7	35	SW	SW	SE	148	1.7	5	3	9				
6	30.138	32.5	30.000	41	30.0[illegible]	40.2	32.5	32	41	36	40.2	38	SE	SW	WSW	85	8.5	10	0	7	3.30 P.M.	7 P.M.	.04	
7	30.[illegible]	24	30.442	29	30.470	25.7	24	24	29	29	25.7	25.7	NW	NW	NW	233	10	0	3	0				
8	30.35[illegible]	18	30.28[illegible]	28	30.220	28.5	18	18	28	28	28.5	28.5	NNW	ENE	NE	114	1	5	9	10				
9	30.064	28.5	30.040	32.5	30.037	30	28.5	28.5	32.5	32.5	30	30	NNE	NE	NNE	327	12.7	10	10	10				
10	29.[illegible]	28.5	29.872	37.5	29.804	37.5	28.5	28.5	37.5	33	37.5	36	N	N	N	412	17.2	9	8	10				
11	29.5[illegible]	33.5	29.914	44	29.970	47	33.5	31.7	44	36	47	39.5	NNW	NW	NW	133	3.2	9	8	5	3 A.M.	7.20 A.M.	.06	
12	29.9[illegible]	34.5	29.900	49	29.[illegible]	40	34.5	33	49	42.7	40	36	NW	SW	SSE	35	0.5	3	5	3				
13	29.910	34.7	29.770	37.7	29.4[illegible]	33.5	34.7	32	37.7	34.5	33.5	32.2	ENE	NE	NE	212	6.2	6	8	10	6 P.M	12 P.M.	.74	
14	29.325	32.5	29.410	23	29.54[illegible]	15.5	32.5	31.5	23	23	15.5	15.5	W	W	W	376	12.2	7	3	5	0h.0m A.M.	4.30 A.M.	.04	
15	29.544	10	29.500	21	29.59[illegible]	20.5	10	10	21	21	20.5	20.5	WSW	WNW	W	280	11	7	9	9				
16	29.63[illegible]	22	29.68[illegible]	33	29.72[illegible]	28	22	22	33	33	28	28	W	W	WNW	262	5.2	3	5	2				
17	29.72[illegible]	29.5	29.73[illegible]	28.7	29.70[illegible]	21.7	29.5	29.5	28.7	28.7	21.7	21.7	WNW	N	WNW	194	9.7	7	8	0				
18	29.914	17	29.97[illegible]	34.2	30.006	29	17	17	34.2	34.2	29	29	N	WNW	N	147	5.7	0	0	0				
19	30.[illegible]	23.5	30.020	44	30.016	31	23.5	23.5	44	37	31	29.7	N	NNE	NNE	68	0.2	2	7	0				
20	29.9[illegible]	29.5	29.930	44.5	29.842	41.5	29.5	29	44.5	34.5	41.5	34.5	NNE	NW	SSW	64	1	0	0	0				
21	29.6[illegible]	35	29.6[illegible]	45.5	29.502	39.7	35	33.5	45.5	37	39.7	32.2	SW	WSW	W	162	4.7	4	7	0				
22	29.[illegible]	13	29.[illegible]	21	29.780	11.5	13	13	21	21	11.5	11.5	NW	WNW	WNW	385	16	2	5	2				
23	29.91[illegible]	17	29.[illegible]	33	29.844	29.5	17	17	33	33	29.5	29.5	WNW	SSW	SW	195	3.5	5	10	0				
24	29.73[illegible]	31	29.67[illegible]	53.5	29.58[illegible]	39.5	31	31	53.5	41.5	39.5	38.7	SSW	SSW	ESE	157	2	2	0	2				
25	29.47[illegible]	43.5	29.47[illegible]	52	29.643	36	43.5	42	52	43.5	36	33.5	SW	W	W	188	15.7	10	5	2	7 A.M.	8.15 A.M.	.04	
26	29.[illegible]	21	29.[illegible]	26	29.9[illegible]	22	21	21	26	[illegible]	22	22	WNW	WNW	W	547	18	0	0	0				
27	29.[illegible]	18	29.7[illegible]	31	29.734	24.2	18	18	31	31	24	24	W	WNW	WNW	448	14.7	0	0	0				
28	29.770	18.2	29.77[illegible]	35	29.[illegible]	28.2	18.2	18.2	35	32.7	28.5	28.2	W	NW	WNW	300	10.5	0	0	2				
29	29.5[illegible]	21	29.74[illegible]	28	29.72[illegible]	28	21	21	28	25.5	28	28	NW	NW	NW	127	5	0	8	10				

MARCH, 1872.

Date.	Barometer (Thermometer attached).						Thermometer (Shade in open air).						Wind.					Clouds.			Rain and Snow.			
	7 A.M.		2 P.M.		9 P.M.		7 A.M.		2 P.M.		9 P.M.		7 A.M.	2 P.M.	9 P.M.									
	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches.
1	29.880	13	29.624	32	29.666	20	13	13	32	20	20	20	NW	W	NW	[illegible]	4	0	0	10				
2	29.790	19.5	29.534	19.7	29.550	20	19.5	19.5	19.7	19.7	20	20	NNE	N	NW	332	12	10	10	10	2.30 P.M.	5 P.M.	.03	.25
3	29.758	21	29.804	35.5	29.836	27.7	19.5	19.5	35.5	34	27.7	27.7	W	WNW	WSW	243	3.2	2	0	0				
4	29.736	21.5	29.560	37	29.644	14	21.5	21.5	37	34	14	14	SW	S	NW	272	17	8	9	0	9 A.M. 5.30 P.M.	11 A.M. 7.30 P.M.	very slight .03	.25
5	29.794	3.5	29.834	7.2	29.852	6.7	3.5	3.5	7.2	7.2	6.7	6.7	W	WNW	W	[illegible]	10.7	3	5	2				
6	29.692	5	29.650	19.5	29.826	19	5	5	19.5	19.5	19	19	W	W	WNW	451	21	4	3	2				
7	29.945	17.7	30.000	30.5	30.024	24.7	17.7	17.7	30.5	30.5	24.7	24.7	WNW	WNW	NW	370	10.5	4	2	0				
8	30.020	21.5	29.930	38.5	29.924	30.7	21.5	21.5	35.5	35	30.7	35	W	W	NE	210	7	4	7	10				
9	29.872	28.7	29.850	28	29.736	30.2	28.7	28.7	28	26.7	30.2	29.7	ENE	NE	NE	258	5.2	10	10	10	7.30 A.M. 9.45 P.M.	9 A.M. 12 P.M.	.01 .05	.12
10	29.464	34	29.294	36.5	29.597	35	34	34	36.5	36	35	32.5	NNE	WNW	W	272	[illegible]	10	10	10	ch. om A.M.	6.30 P.M.	1.11	
11	29.874	30.5	29.930	43.5	29.908	35.5	30.5	30	43	35	35	31.5	W	WNW	NNE	161	[illegible]	7	9	10				
12	29.870	28.5	29.912	32	30.020	30.5	29.5	29.5	32	31	30.5	29.7	N	NNW	NNW	299	15.2	10	3	0	1.30 A.M.	6.30 A.M.	.14	2.00
13	30.140	19.5	30.150	40.2	30.072	39.5	19.5	19.5	40.2	32.2	39.5	32.2	NW	N	S	144	3	0	0	8				
14	30.030	38.5	30.004	51	29.766	43.5	38.5	30	51	43	43.5	40.5	WSW	ESE	ESE	95	0.7	7	4	10	9 P.M.	12 P.M.	.24	
15	29.746	30.5	29.950	27	30.070	20	30.5	30.5	27	27	20	20	WNW	NW	WNW	410	21	5	4	0	oh. om. A.M.	4.30 A.M.	.07	
16	30.122	17	30.072	29.5	29.984	30	17	17	29	29	30	30	W	SW	SW	281	4.2	6	8	0				
17	29.850	32	29.714	31	29.644	29.5	32	32	31	31	29.5	29.5	SSW	SSW	W	180	4.7	10	10	10	11 A.M. 8.45 P.M.	3.45 P.M. 9.30 P.M.	[illegible] .01	Melted as it fell.
18	29.741	22	29.820	31.5	29.818	42	22	22	31.5	31	42	38	WNW	WSW	SE	276	7.2	2	4	0				
19	29.576	30.5	29.616	41	29.830	30.5	30.5	33.2	41	30.5	30.7	30.2	SW	W	WNW	320	17.2	4	9	0	10 A.M.	10.30 A.M.	very slight	
20	29.890	10	29.868	20.5	29.954	10	10	10	20.5	20.5	10	10	W	WNW	W	411	22	5	4	2				
21	29.960	14.5	29.920	25	30.030	20.2	14.5	14.5	25	25	20.2	20.2	W	WNW	WNW	479	18	2	3	0				
22	30.134	18	30.080	34.5	30.054	37.7	18	18	34	32.2	37.7	37	W	WSW	SSW	312	8.2	0	0	10				
23	29.834	41.5	29.650	33	29.672	33	41.5	38	33	31.7	33	33	ESE	NE	WSW	153	13.2	10	10	10	7 A.M.	3.30 P.M.	.01	.25
24	29.990	25.2	30.110	37.7	30.272	40	25.2	25.2	37.7	36.2	40	40	WSW	WNW	WNW	283	21.5	2	3	5				
25	30.404	33.2	30.380	44.5	30.220	30	33.2	33.2	44	37.7	30	34.5	NNW	SE	E	113	2	7	10	10	1 A.M.	6 P.M.	.74	2.25
26	30.034	34	30.006	34.2	30.004	36	34	32.7	34.2	32.7	36	34	NE	NE	NNE	287	21	10	10	10				
27	29.992	31	29.998	42	29.996	37	31	30.5	42	37.5	37	35	NNW	NNW	NNW	279	17	10	3	2				
28	30.024	38	30.040	51	29.984	43	38	30	51	43.7	43	42	NNW	W	SE	78	2.2	0	0	4				
29	29.906	43	29.850	59.5	29.952	44	43	39	59.5	45.5	44	40.5	SSW	SW	NNW	214	3	8	9	10				
30	30.030	32.5	30.046	44	30.024	39	32.5	29.5	44	36	39	34	N	E	ESE	149	1.2	8	9	10	7.30 P.M.	9.30 P.M.	.01	
31	29.994	35.2	29.344	31.2	29.386	40	35.2	34	34.2	34	40	38.5	ENE	NE	N	274	10.7	10	10	10	3 A.M.	10.30 P.M.	1.27	

APRIL, 1872.

DATE.	BAROMETER (Thermometer attached). 7 A.M. Observed Height.	7 A.M. Ther-mometer.	2 P.M. Observed Height.	2 P.M. Ther-mometer.	9 P.M. Observed Height.	9 P.M. Ther-mometer.	THERMOMETER Shade in open air. 7 A.M. Dry.	7 A.M. Wet.	2 P.M. Dry.	2 P.M. Wet.	9 P.M. Dry.	9 P.M. Wet.	WIND. 7 A.M. Direction.	2 P.M. Direction.	9 P.M. Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	CLOUDS. 7 A.M.	2 P.M.	9 P.M.	RAIN AND SNOW. Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches.
1	29.5[illegible]	38.5	29.626	40.5	29.856	38.2	38.5	35.2	40.5	35	38.2	35.5	W	W	W	410	21.5	9	9	0				
2	30.0[illegible]	34.5	30.074	47.5	30.046	52.5	34.5	32	47.5	37.7	52.5	42.7	WSW	W	W	395	10.2	3	2	8				
3	29.914	41	29.990	50	30.038	39	41	36	50	39.5	39	33.2	W	WNW	NW	250	15.7	7	5	7				
4	30.005	32.7	30.080	40	30.060	39	32.7	29.5	40	35	39	35	W	N	NW	225	5	2	2	6				
5	30.120	32	30.103	49.5	30.130	44	32	30	49.5	40.5	44	38	WNW	NW	SW	133	3	2	2	4				
6	30.130	40	[illegible]	57.2	30.020	53.7	40	39.5	57.2	45	53.7	45.5	WSW	SW	SSW	134	5.5	7	0	10				
7	30.0[illegible]	47.2	30.000	40	29.938	41.7	47.2	43.5	49	46	41.7	41	SE	SE	NE	210	5	10	10	10	7.30 A.M.	12 P.M.	1.13	
8	29.9[illegible]	41.5	29.974	53.2	30.002	41	[illegible]	40.7	53.2	48.5	40	43.7	NNE	NNE	SE	170	6	10	8	10	0h 0m A.M.	8 A.M.	.11	
9	29.[illegible]	41	29.773	41.2	29.634	50	41	39	41.2	41	50	[illegible]	E	NE	SE	110	2	10	10	10	4.10 A.M. 10.30 P.M.	1.30 P.M. 11.30 P.M.	.30 .01	
10	29.[illegible]	56	29.746	57	29.886	52.2	56	55.5	57	47.5	52.2	46.2	SW	WSW	NW	248	3	8	1	[illegible]	2.15 A.M.	3.30 A.M.	.07	
11	30.03[illegible]	40.2	30.106	57	30.204	58.5	40.2	39	57	44	58.5	44	W	W	WNW	272	6.5	1	0	0				
12	30.2[illegible]	44.2	30.203	58.5	30.034	57.7	44.2	38	58.5	46.5	57.7	49.5	NE	SE	ESE	155	4	3	8	7				
13	29.970	57	29.93[illegible]	63.5	29.916	60.[illegible]	57	47	63.[illegible]	48	60.[illegible]	45	SW	W	WSW	210	14.5	10	0	3	6.15 A.M.	9.30 A.M.	.15	
14	29.952	41	29.948	[illegible]	30.034	40	41	38	51	41.[illegible]	40	37	WNW	NW	NW	319	17.5	0	3	0				
15	29.7[illegible]	34.[illegible]	29.832	41	29.734	37	34.[illegible]	31	41	38	37	35.[illegible]	WNW	S	ESE	152	6	8	0	10	[illegible] P.M.	11 P.M.	.12	Melted as it fell.
16	29.772	34.5	[illegible]	38	30.078	[illegible]	34.5	32.7	38	35	40.2	35.7	NW	WNW	WNW	354	21.5	8	8	0				
17	30.170	39	30.100	50.7	30.042	46.2	36	35	50.5	41	49.2	44.5	W	SW	S	163	5	0	9	0				
18	29.914	36	29.774	54.5	29.624	40.2	36	35	54.5	47.2	40.2	37.5	S	SE	NE	193	7.2	7	8	10	[illegible].30 P.M.	8.30 P.M.	.15	
19	29.5[illegible]	40	29.6[illegible]	[illegible].2	29.730	50.5	40	37.7	55.2	48	50.5	50	N	W	NW	157	4	3	8	0	0h 0m A.M.	5.30 A.M.	.0[illegible]	
20	29.902	45	29.9[illegible]	[illegible]	29.9[illegible]	58	45	44	62	54	58	51.[illegible]	SW	SE	SE	76	2	2	2	2				
21	30.020	50	30.010	63.7	[illegible]	53.[illegible]	50	46.5	63.7	54.5	53.5	49	SSW	SE	SE	136	3	0	0	0				
22	29.820	33.5	29.840	55	[illegible]	40	33.5	30.2	55	[illegible]	40	34.[illegible]	SE	WNW	NW	210	10	9	2	6	6.[illegible] A.M.	9.45 A.M.	[illegible]	
23	30.040	31	30.033	46	30.012	[illegible]	31	30	46	36.[illegible]	49	4[illegible]	WSW	SW	SSE	215	7.2	0	0	2				
24	30.008	44	30.0[illegible]	64.5	30.070	63	44	41	64.5	53.7	63	53.7	SSW	SSW	SW	2[illegible]3	4.2	7	3	3				
25	30.060	52	[illegible]	67	30.110	71.2	52	48.5	67	58.2	71.2	58	WSW	SE	SSW	117	3.7	5	2	2				
26	29.855	57	29.75[illegible]	71	29.794	71.[illegible]	57	52.7	71	62.5	74.2	62	SW	SW	W	336	12	5	8	5				
27	29.9[illegible]	54	29.9[illegible]	[illegible]	29.9[illegible]	[illegible]	54	44.7	66.[illegible]	49.5	60.[illegible]	46.2	NW	NW	W	237	9	8	3	0				
28	30.070	50	30.048	63.[illegible]	30.0[illegible]	[illegible]	50	44.5	63	41.7	[illegible]	46.7	W	W	NW	116	5	6	0	0				
29	30.155	45	30.130	62.[illegible]	30.250	62	45	39	62.[illegible]	40	52	52	NW	N	NNE	125	5.2	0	2	0				
30	30.318	45	30.31[illegible]	[illegible]	30.272	52	45	43	60	40.5	52	47.2	ENE	SE	SSE	157	5.5	0	0	2				

MAY, 1872.

Date.	Barometer (Thermometer attached). 7 A.M. Observed Height.	7 A.M. Ther-mometer.	2 P.M. Observed Height.	2 P.M. Ther-mometer.	9 P.M. Observed Height.	9 P.M. Ther-mometer.	Thermometer (Shade in open air). 7 A.M. Dry.	7 A.M. Wet.	2 P.M. Dry.	2 P.M. Wet.	9 P.M. Dry.	9 P.M. Wet.	Wind. 7 A.M. Direction.	2 P.M. Direction.	9 P.M. Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	Clouds. 7 A.M.	2 P.M.	9 P.M.	Rain and Snow. Time of Beginning	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches
1	30.190	46	30.092	55.5	30.032	55.5	46	44	55.5	51.7	55.5	51.5	SE	SE	SE	194	8	10	8	10				
2	29.920	55.7	29.872	70	29.854	63	55.7	52.2	70	62	63	57.7	SE	SSE	SE	126	10.7	10	2	0	1 A.M	9.15 A.M	.62	
3	29.894	46	29.850	56	29.858	53	46	42.5	56	47.5	53	49	NW	WSW	W	252	10.7	8	2	10				
4	29.894	43	29.930	49	30.048	46	43	43	49	48	46	41.7	W	WNW	W	323	12.7	6	0	4	0h. 0m. A.M	1.30 A.M.	.03	
5	30.134	44.7	30.088	57	30.000	53	43.7	41	57	45.5	53	45	W	NW	W	225	16.5	2	3	0				
6	29.948	51.2	29.910	68	30.022	51.5	51.2	47	68	58	51.5	46	W	WNW	NNE	237	16.5	0	8	0				
7	30.042	59	30.002	75.5	29.982	67.5	59	49	75.5	62	67.5	60	WSW	SW	SW	109	3	0	0	0				
8	30.016	67	30.044	83	30.078	70.7	67	[illegible]	83	64	70.7	63	WNW	W	WNW	73	3	0	6	2				
9	30.020	65	29.948	87	29.928	77.5	65	60	87	66.5	77.5	64.2	WNW	SW	SW	154	4.2	0	6	0				
10	29.9[illegible]	70	30.040	87	30.082	70	70	59.7	87	67.5	70	62.2	SW	W	E	108	4.7	0	7	0	5.10 P.M.	5.30 P.M.	.11	
11	30.100	49.5	30.054	58.7	29.992	48.2	46.5	40	58.7	51	48.2	47	NE	ENE	ENE	262	8	0	0	2				
12	29.900	58.2	29.858	73.5	29.792	60.2	58.2	54	73.5	64	60.2	58	ENE	ESE	ENE	95	2	0	8	4				
13	29.818	52	29.850	69	29.900	62	52	46.5	69	53.2	62	50	NW	NW	NW	149	3	5	2	2				
14	30.080	50	30.144	67.2	30.188	62	50	43.5	67.2	52	62	52.7	NNW	NW	SSE	142	3.5	0	3	0				
15	30.184	54.2	30.108	70.7	30.096	59	54.2	50	70.7	58	59	53.7	SW	SE	ENE	132	3	0	9	2				
16	30.118	53.2	30.000	66.7	29.990	60	53.2	47.2	66.7	50	60	52	NW	N	NNE	128	4.7	0	0	0				
17	29.962	49.2	29.924	66	29.932	62.2	49.2	42	66	51	62.2	50	WNW	NNW	S	92	1.2	0	0	0				
18	29.944	53	29.923	65	29.810	55	53	47.7	65	51.7	55	51	SE	SE	ESE	139	4.2	0	0	5				
19	29.564	59.2	29.442	62	29.552	63.5	59.2	57.5	62	60	63.5	58	SE	SE	W	145	4.2	10	9	8	0h. 30m. AM 4 30 P.M	11 A.M. 6. 30 P. M.	.23 .19	
20	29.618	60	29.600	67.2	29.680	59	60	56	67.2	58.5	59	54	WSW	W	NW	183	9	5	6	5	0h. 15m. P.M	0h 30m P.M.	.04	
21	29.700	55.5	29.838	69.5	29.940	64	55.5	50	69.5	56.2	64	55.7	WNW	WNW	NNW	104	5.2	2	5	10				
22	30.010	58.5	29.980	73.5	29.872	65.2	58.5	53	73.5	60.7	65.2	59.7	NNW	SE	SE	142	3	8	7	10	8. 30 P. M.	12 P. M.	.33	
23	29.698	64	29.678	71.5	29.780	64	64	62.5	71.5	66.5	64	58	S	WSW	WNW	213	8	10	9	2	1 30 A.M.	2 P.M.	.01	
24	29.850	62	29.854	72	29.812	65	62	55	72	62	65	60.2	WNW	SE	ESE	119	2.2	3	7	8	0h. 30m. P.M	2.30 P.M.	not measurable.	
25	29.784	62	29.788	72	29.850	68	62	60	72	62	68	57	SE	W	WNW	73	1.2	10	9	10	8 A.M.	8.30 A.M.	not measurable.	
26	29.926	58	29.976	63	29.930	66	58	50	63	55.5	66	55.5	NW	NNW	NNW	71	1	8	7	4				
27	29.850	62.5	29.690	63	29.700	56	62.5	53.7	63	59	56	53.5	SSW	SE	W	162	10	0	9	10	3.40 P.M.	6.35 P.M.	.34	
28	29.720	55.5	29.700	67.5	29.900	61	55.5	51.7	67.5	59	61	51	WNW	SSW	NNW	197	6	2	6	0				
29	30.004	50.5	30.032	66.5	30.056	67	50.5	45	66.5	54.5	67	55.7	W	SW	W	155	3.5	0	4	4				
30	30.068	57	29.920	55.5	29.904	55.5	57	51.7	55.5	53	55.5	54	NW	ESE	ENE	90	1.2	9	9	10	9.45 A.M	2.20 P.M.	.76	
31	29.958	54	29.971	65.5	30.042	62	54	51	65.5	50	62	54.5	WNW	WNW	NW	235	10	8	6	0				

JUNE, 1872.

Date.	BAROMETER (Thermometer attached).						THERMOMETER (Shade in open air).						WIND.					CLOUDS.			RAIN AND SNOW.			
	7 A.M.		2 P.M.		9 P.M.		7 A.M.		2 P.M.		9 P.M.		7 A.M.	2 P.M.	9 P.M.									
	Observed Height.	Thermometer.	Observed Height.	Thermometer.	Observed Height.	Thermometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches.
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	57	50	70	53.5	62.7	54.7	WSW	WNW	NW	146	5.2	0	9	10	8.50 P.M.	12 P.M.	.07	
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	64.7	52	46	64.7	52	64.7	55	N	NNW	ESE	101	2	0	0	0				
3	[illegible]	[illegible]	[illegible]	[illegible]	30.020	[illegible]	57.5	50.2	68.2	50	63.5	50	NE	WSW	SE	109	3	0	3	4				
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	56	[illegible]	55	59.2	56	56	55.5	S	SE	E	189	6.5	8	10	10	1.20 P.M.	11 P.M.	.21	
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	56	[illegible]	51	54.2	53	56	[illegible]	WNW	NW	NNW	271	19.5	10	9	10	7.10 A.M.	11.20 P.M.	.29	
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	72.7	[illegible]	66.7	59	NW	N	SE	212	14	5	9	9				
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	58	61	55	63.5	58	58	57.2	SW	SE	ESE	93	0.7	7	10	10	0h 30m P.M.	10.30 P.M.	.20	
8	[illegible]	57.7	[illegible]	[illegible]	[illegible]	76.7	57.7	57.7	76.5	70	76.7	69.5	ENE	SW	WSW	135	4.5	10	9	9	5 A.M.	7.20 A.M.	.01	
9	[illegible]	[illegible]	29.820	70.7	[illegible]	72	65.7	60	70.7	67.5	72	65.7	W	WSW	SE	118	3.2	0	0	7				
10	[illegible]	[illegible]	29.684	70	29.754	63.7	67.[illegible]	65	70	70	68.7	63.5	SE	WSW	WSW	161	6.5	8	7	4	5.30 A.M. 1.15 P.M.	8 A.M. 1.30 P.M.	.10 .01	
11	[illegible]	[illegible]	[illegible]	78.7	29.952	76	65	[illegible]	78.7	64.5	76	65	W	W	WSW	201	8.2	3	4	0				
12	[illegible]	69.7	[illegible]	[illegible]	29.920	72.7	69.7	62	85.2	[illegible]	72.7	[illegible]	WSW	SSW	SW	220	6	0	0	8	7.30 P.M.	8.30 P.M.	.01	
13	[illegible]	[illegible]	[illegible]	[illegible]	29.782	75	69	64	81.2	63	75	66	WNW	SE	SSE	107	4	3	1	7				
14	29.700	71.7	[illegible]	[illegible]	29.776	[illegible]	71.7	66.5	85	73	66	58.7	SW	SE	W	189	22	0	7	0	3.50 P.M.	7.30 P.M.	.39	
15	29.844	[illegible]	[illegible]	74.7	[illegible]	71.2	62	58.2	74.7	63	71.2	64	WNW	WNW	SSE	94	2	0	8	0				
16	[illegible]	64	[illegible]	74	[illegible]	73.5	64	58.7	74	60	73.5	63	ENE	NNE	SE	46	1.2	8	7	5				
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	75.7	66	61	80.2	64	75.7	63.7	WNW	WNW	S	95	1.5	7	5	3				
18	[illegible]	67.2	[illegible]	81.7	30.100	76.5	67.2	63	81.7	66	76.5	67	W	NW	SE	102	2.7	7	4	9				
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	79	69	64	85.5	69	79	64.7	SW	SW	SSW	134	2.5	4	4	4				
20	[illegible]	[illegible]	[illegible]	[illegible]	30.105	81	69.5	61.2	88	69.[illegible]	81	68	SW	SW	SW	143	1.5	8	4	8				
21	[illegible]	72.7	30.134	[illegible]	[illegible]	84	72.7	65	88	71.5	84	70.[illegible]	SSW	SW	SSW	225	3	0	1	0				
22	[illegible]	70	[illegible]	[illegible]	[illegible]	77.2	70	67.7	85.5	74	77.2	69.[illegible]	ESE	N	N	144	6.2	3	[illegible]	7				
23	[illegible]	71	[illegible]	[illegible]	30.064	74	71	63.2	80	69	71	67	NNE	E	ESE	130	2	2	[illegible]	6				
24	[illegible]	[illegible]	[illegible]	72	[illegible]	[illegible]	66.5	65	72	[illegible]	69.2	64	ESE	SE	ESE	64	0.7	10	10	10				
25	[illegible]	64	[illegible]	[illegible]	[illegible]	[illegible]	64	62.5	65	64	63.5	63	ESE	E	ENE	161	3.5	10	10	10	7.30 A.M.	12 P.M.	1.00	
26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	63	70	68.5	69	[illegible]	NE	NE	NE	164	2	10	10	10	0h 0m A.M. 9.30 P.M.	5.30 A.M. 10.15 P.M.	[illegible] .01	
27	[illegible]	[illegible]	[illegible]	[illegible]	30.100	72	[illegible]	64.7	80.2	[illegible]	[illegible]	[illegible]	NE	SSE	ESE	94	1	10	6	10				
28	[illegible]	70	[illegible]	[illegible]	30.078	[illegible]	70	69	87.5	71.2	82.5	72	E	SW	SSE	115	3.2	10	5	3				
29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	70.5	69	90	73.8	81.5	75	W	SSE	WSW	89	1.2	2	7	0	[illegible] 30 P.M.	3 P.M.	.01	
30	30.078	77	[illegible]	[illegible]	[illegible]	[illegible]	77	71	[illegible]	73.8	[illegible]	74	WNW	W	WSW	83	2.5	0	2	3				

JULY, 1872.

Date.	Barometer (Thermometer attached).						Thermometer (Shade in open air).						Wind.					Clouds.			Rain and Snow.			
	7 A.M.		2 P.M.		9 P.M.		7 A.M.		2 P.M.		9 P.M.		7 A.M.	2 P.M.	9 P.M.									
	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches
1	30.026	77.2	29.988	92.7	29.920	87.7	77.2	69.5	92.7	76	87.7	75.5	WNW	W	WNW	143	1.5	0	2	3				
2	29.916	80.7	29.918	93.5	29.906	83.5	80.7	72	93.5	76.5	83.5	74.2	W	WSW	W	101	4.5	0	3	0				
3	29.930	70.5	29.928	93	29.900	88	70.5	68.5	93	78	83	76.2	NNE	S	E	127	3	0	1	8				
4	29.800	85	29.828	93.5	29.860	74.5	85	73	93.5	77	74.5	71.7	SW	SSW	E	179	7.2	3	3	10	5.15 P.M.	12 P.M.	1.20	
5	29.904	72.5	29.946	86.5	30.002	79	72.5	71	86.5	73	79	72	W	W	SE	97	2.7	2	3	7	ch.om. A.M 6.50 P.M.	2 A.M. 7.30 P.M.	.15 .13	
6	30.068	73	30.086	83.2	30.098	81.2	73	65.5	83.2	66.2	81.2	70.5	NW	W	S	77	2	2	3	5				
7	30.132	73	30.158	81.2	30.100	75.7	73	65.5	81.2	64	75.7	67.5	W	E	WSW	69	1	10	7	10				
8	30.190	77	30.212	84.5	30.102	77.5	77	70.7	84.5	72.5	77.5	71.2	W	SE	SE	91	4	3	4	2				
9	30.222	72	30.232	84.2	30.186	76.7	72	69.7	84.2	74	76.7	72	ESE	SE	SE	101	2.5	0	5	9				
10	30.148	70	30.048	86	29.970	75	76	71	86	77	75	71	S	S	SW	102	3.2	8	7	0	3.30 P.M	8 P.M.	.13	
11	29.918	75	29.930	85.5	29.930	82.2	75	71.7	85.5	72.5	82.2	74.7	WSW	WNW	SW	173	3.2	3	7	7	2 A.M.	3.30 A.M	.02	
12	29.900	76	29.860	81	29.876	72.2	76	72	81	71	72.2	66.7	WSW	WSW	WSW	125	2.7	6	9	2	6.15 P.M.	6.30 P.M.	.01	
13	29.980	72.5	30.040	80.5	30.076	74.5	72.5	67	80.5	70.7	74.5	70	W	ENE	ESE	113	2	4	7	2				
14	30.038	70.5	30.022	85.5	30.020	80.5	70.5	70	85.5	75	80.5	75.7	E	W	SE	53	0.5	10	6	4				
15	29.994	79	29.972	87.7	29.922	77.5	79	75.2	87.7	74.5	77.5	72.7	SW	S	SSE	86	4.2	9	8	6	3.10 P.M.	11 P.M.	1.57	
16	29.836	76.5	29.832	84	29.850	77	76.5	73	84	75	77	71	SW	WSW	WSW	178	6.5	7	8	7	1.30 A.M.	2 A.M.	.03	
17	29.838	79	29.838	87	29.832	83	79	74	87	75.7	83	76.7	SSW	WSW	WSW	100	2.7	4	9	0				
18	29.874	75	29.900	84	29.882	75.5	75	73.7	84	77	75.5	72	ENE	ESE	ESE	81	2	10	9	10	4.15 P.M.	10.15 P.M.	.02	
19	29.868	74	29.924	84	29.952	73.2	74	70	84	72.7	73.2	61.5	WNW	WNW	NW	146	3.5	9	5	3				
20	30.028	67.5	30.072	82	30.038	77	67.5	60.7	82	68.5	77	63	NW	NW	S	91	1.2	3	6	2				
21	30.034	69	29.994	78.2	29.880	74	69	64.7	78.2	68.5	74	67.5	SW	SE	SSE	188	8.7	7	6	6				
22	29.677	67.5	29.774	80.5	29.914	71.5	67.5	64.7	80.5	65.2	71.5	60	W	WNW	WNW	213	10.7	8	3	5	1.15 A.M.	6 A.M.	1.12	
23	30.006	66	30.030	76.5	29.954	74	66	57.2	70.5	63.5	74	65.7	WNW	SE	S	123	1.7	8	10	10				
24	29.826	68	29.888	76	29.996	70.5	68	65.5	76	66	70.5	63	WSW	WNW	WNW	141	4.2	10	5	0	5.30 A.M	7.30 A.M.	.23	
25	30.100	69	30.116	79.5	30.090	76.5	69	61.5	79	63.7	76.5	68	WNW	W	SSE	129	2	4	3	0				
26	29.866	66	29.770	80	29.750	67	66	63.7	80	72	67	64.5	NE	W	ENE	179	8	10	3	10	2 A.M.	10.30 A.M.	2.01	
27	29.864	66.5	29.922	77.7	29.964	72	66.5	60	77.7	63.5	72	62.5	WNW	WNW	W	195	5.5	3	1	10				
28	30.018	70	30.044	81	30.058	77	70	62.7	81	69.5	77	69.5	W	SE	S	85	2.2	7	4	2				
29	30.082	70	30.068	83.5	29.988	76.7	70	66	83.5	70.5	76.7	70	SW	SSE	SSW	102	5	2	2	10				
30	29.950	70	29.992	78	30.008	74.5	70	63.5	78	66	74.5	65	NW	NNE	NNE	225	4.7	0	4	5				
31	29.974	68.7	29.910	71	29.898	69	68.7	63.5	71	67	69	66	NNE	ESE	W	78	2	10	10	10	11.15 A.M 8.10 P.M.	5 P.M. 11.15 P.M	.22 .09	

AUGUST, 1872.

Date	Barometer (Thermometer attached). 7 A.M. Observed Height.	7 A.M. Ther-mometer.	2 P.M. Observed Height.	2 P.M. Ther-mometer.	9 P.M. Observed Height.	9 P.M. Ther-mometer.	Thermometer (Shade in open air). 7 A.M. Dry.	7 A.M. Wet.	2 P.M. Dry.	2 P.M. Wet.	9 P.M. Dry.	9 P.M. Wet.	Wind. 7 A.M. Direction.	2 P.M. Direction.	9 P.M. Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square f.	Clouds. 7 A.M.	2 P.M.	9 P.M.	Rain and Snow. Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches.
1	29.930	64.5	29.934	74.5	29.998	70	64.5	61.5	74.5	65	70	65.5	N	E	SE	151	3	4	4	10				
2	29.906	68	29.950	72	29.912	70	68	65	72	68.5	70	68	ESE	ESE	SE	114	1.7	10	10	10	2.10 A.M.	3 A.M.	.01	
3	29.894	69	29.922	80.7	29.990	73.7	69	67	80.7	70	73.7	69	E	NNE	ESE	42	1.5	10	4	8				
4	30.036	70.5	30.150	71	30.186	72	70.5	68.7	71	68	72	67.7	E	ESE	S	61	1	10	10	10	10.30 A.M.	2 P.M.	.60	
5	30.252	65.2	30.274	77	30.254	72.2	65.2	63.2	77	64.5	72.2	68.2	WNW	E	SSE	85	1.2	10	2	3				
6	30.224	71	30.210	77	30.180	73	71	66.7	77	69	73	69	SSW	SE	S	137	5.5	10	9	10				
7	30.192	71.5	30.228	84	30.210	78.2	71.5	69	84	73.2	78.2	71	WSW	SW	S	93	2.2	10	3	0				
8	30.228	71	30.254	85.7	30.216	77.5	71	68.2	85.7	73	77.5	71	SW	S	S	146	5	0	1	0				
9	30.218	70.5	30.206	86.5	30.168	77.2	70.5	67.2	86.5	74.2	77.2	69.5	SSW	SSE	SE	141	3.2	0	1	10				
10	30.126	72.2	30.044	82.5	30.010	70	72.2	69	82.5	75.7	70	69.5	SSW	S	W	164	6.5	7	2	10	8.10 P.M.	9.30 P.M.	[illegible]	
11	29.996	73.7	30.048	87.5	30.018	79.5	73.7	71.5	87.5	77.5	79.5	74.2	W	SE	SE	86	1.5	0	3	9	3.30 A.M. 7.15 P.M.	7 A.M. 12 P.M.	.34 .01	
12	30.036	75.5	30.052	88.5	30.052	73.7	75.5	73	88.5	78.5	73.7	70.5	SW	SE	WNW	95	3.2	6	6	10	0h. 0m. A.M. 9.15 A.M. 9.15 P.M.	1.45 A.M. 9.30 A.M. 11 P.M.	.06 .01 .13	
13	30.036	76.5	30.004	89	29.964	81.7	76.5	72.5	89	78	81.7	76	SSW	SSE	S	104	2	7	7	10				
14	29.966	76.7	29.966	89.7	29.964	84.2	76.7	73	89.7	79	84.2	76.5	SSW	S	SE	102	2.2	8	3	7				
15	29.986	78	30.038	87	30.078	77.7	78	73.5	87	75.5	77.7	73	SW	WSW	NW	120	10.2	8	9	10	0h. 0m. A.M. 5.45 P.M.	0h. 30m. A.M. 12 P.M.	.04 .02	
16	30.116	75.2	30.096	72	30.082	75	75.2	71	72	70.5	75	72	SE	E	SE	72	11.2	8	10	10	0h. 0m. A.M. 11 A.M.	2.20 A.M. 9 P.M.	.33 1.24	
17	30.018	74.5	30.028	84	30.090	77.7	74.5	72	84	74	77.7	71	SSW	SW	WSW	167	2.5	10	6	3	1.30 A.M. 9 A.M. 11 A.M.	4.15 A.M. 9.30 A.M. 11.30 A.M.	.01 .04 [illegible]	
18	30.148	73.7	30.152	86.7	30.150	84	73.7	70	86.7	72.5	84	74.7	WSW	WSW	S	69	1.5	1	3	0				
19	30.154	77	30.180	87	30.174	80	77	72	87	76.5	80	74.5	SW	WNW	ESE	84	4.2	3	8	0	0h. 15m. P.M.	0h. 45m. P.M.	[illegible]	
20	30.222	75.7	30.232	80	30.222	77	75.7	73	80	74.5	77	73	WSW	NE	ESE	75	2	8	10	0	3.15 A.M.	5 A.M.	[illegible]	
21	30.176	77	30.134	84	30.074	80	77	72.2	84	76.7	80	73.5	E	SE	SSE	43	0.7	9	0	2				
22	30.004	75	29.916	91	29.910	76.7	75	72.5	91	78.7	76.7	70.7	W	S	SE	98	10.7	8	5	10	6.20 P.M.	9 P.M.	.30	
23	29.900	70.5	29.936	83.2	29.946	75	70.5	64.5	83.2	68	75	66	WNW	N	N	154	3.5	8	2	0				
24	30.036	73.2	30.072	83	30.082	79.5	73.2	65	83	69	79.5	69.2	N	NW	SE	65	0.7	0	1	5				
25	30.090	72.7	30.050	83.2	30.010	76	72.7	64.2	83.2	64.5	76	65.7	SW	SE	SSE	108	3.7	6	2	9				
26	29.960	70.5	30.006	82	29.990	79	70.5	67.5	82	72	79	71.2	W	NE	SSE	79	1.7	0	2	8				
27	29.900	74.7	29.842	80	29.954	71	74.7	70	80	70.2	71	63.5	SSW	WNW	NW	147	8.7	8	3	0				
28	30.022	65	30.032	74	30.018	71	65	59.5	74	61.5	71	61.7	NW	NW	NNW	[illegible]	1.5	5	0	2				
29	[illegible]	65.2	29.946	67	29.826	61.2	65.2	60.5	67	61	61.2	59.2	NNW	W	ESE	75	1.5	8	10	10	9 A.M. 4 P.M.	0h. 30m. P.M. 12 P.M.	[illegible] .44	
30	29.504	65	29.644	71.5	29.730	58.2	65	63	71.5	59.7	58.2	51	WNW	WNW	W	276	10.5	7	4	0	0h. 0m. A.M.	4.30 A.M.	1.87	
31	29.702	56	29.766	65.7	29.868	59.5	56	50.5	65.7	55.7	59.5	52	WSW	W	WSW	301	7.7	0	8	3				

SEPTEMBER, 1872.

Date.	Barometer (Thermometer attached).						Thermometer (Shade in open air).						Wind.					Clouds.			Rain and Snow.			
	7 A.M.		2 P.M.		9 P.M.		7 A.M.		2 P.M.		9 P.M.		7 A.M.	2 P.M.	9 P.M.									
	Observed Height.	Thermometer.	Observed Height.	Thermometer.	Observed Height.	Thermometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches
1	29.960	59.5	30.014	75	30.034	70.5	59.5	53	75	63	70.5	61.7	WSW	W	SW	234	6.5	0	2	3				
2	29.978	65.5	29.944	79	29.934	66.5	65.5	59.2	79	67	66.5	60	SW	W	W	181	5.5	0	8	9	5.50 P.M.	6.30 P.M.	.02	
3	29.974	50.5	29.978	63.7	30.008	55	50.5	45	63.7	52.5	55	48	WNW	NW	WNW	179	5	0	2	0				
4	30.016	50	29.972	63.7	29.982	60	50	45	63.7	55.2	60	52.7	W	W	WNW	121	1.7	8	4	2				
5	29.952	58.7	29.930	66.2	29.990	64.5	58.7	53	65.2	59	64.5	61.7	WNW	ESE	E	46	0.5	10	0	7				
6	29.938	62.7	29.954	73	29.918	69.5	62.7	61.2	73	67.5	69.5	64	W	SE	SE	31	0.5	10	0	10				
7	30.022	63	30.040	80	29.950	71.7	68	66	80	70.7	71.7	69.5	SE	SE	ESE	62	0.7	9	2	2				
8	29.950	73	29.930	91.5	29.990	84	73	69.5	91.5	79.7	84	70.5	SW	SSW	SSW	90	2	0	3	2				
9	30.010	70	30.034	83	30.170	67.2	70	70	83	74	67.2	61	WSW	WNW	E	116	14.7	2	4	10	4.15 P.M.	4.30 P.M.	.13	
10	30.292	65	30.304	69.5	30.320	64.2	65	58	69.5	60.2	64.2	59.2	E	E	ESE	181	2.7	10	0	10				
11	30.280	64.5	30.252	73.2	30.210	67	64.5	60	73.2	65.2	67	63.5	E	ESE	E	133	1	9	9	9				
12	30.154	70	30.118	78	30.076	70.5	70	65.7	78	69	70.5	66.5	ESE	SE	ESE	150	6.2	8	7	9				
13	29.954	70.2	29.974	74.7	30.028	70.2	70.2	68.5	74.7	69.5	70.2	67	SE	S	ESE	159	3.2	10	9	9				
14	30.084	58.7	30.100	63	30.102	60	58.7	53	63	58	60	55	NW	NW	NNW	130	2.5	8	8	10	8 A.M.	12 M.	.43	
15	30.000	57	30.030	60.2	30.014	54.7	57	52.2	60.2	56	54.7	53	NNE	NNE	NNE	268	7	9	9	10	7.30 P.M.	12 P.M.	.13	
16	29.918	55.5	29.834	59	29.900	59	55.5	53.2	59	55	59	55.2	NW	NNW	NW	209	5.5	9	0	3	[illegible] A.M.	7.30 A.M.	.09	
17	29.908	57	29.910	65	29.958	64.2	57	54.5	65	59.5	64.2	60	NW	N	SE	65	0.7	9	0	9				
18	29.930	60.5	29.896	70.5	29.878	65.7	60.5	59.7	70.5	62.2	65.7	62	SW	S	SE	95	1.2	8	4	8				
19	29.722	64.7	29.700	63	29.758	59.5	64.7	62.5	63	60	59.5	54	SE	SSW	WSW	120	4	10	4	0	7.20 A.M. 10.15 A.M.	8.10 A.M. 11.10 A.M.	.21 .04	
20	29.850	54	29.938	62	30.020	56	54	47	62	53.2	56	49	WSW	W	WNW	314	10.5	1	4	0				
21	30.082	52.5	30.050	70.7	30.030	59	52.5	49.5	70.7	53.5	59	50	WSW	SW	SSW	130	2	0	0	0				
22	30.026	62	30.090	87	30.140	75.7	62	52	87	71	75.7	68.7	SW	W	WSW	50	0.5	0	0	3				
23	30.196	68	30.214	81.5	30.230	69.5	68	63.7	81.5	70.5	69.5	65	NW	ESE	SE	81	1.5	4	0	0				
24	30.250	65	30.276	74.7	30.200	60.7	65	62.7	74.7	68	60.7	63.5	ENE	SE	SE	65	1	10	6	10				
25	30.228	65	30.130	68.5	30.060	69	65	64	68.5	65.7	69	67	ESE	ESE	SE	140	3.7	10	10	10	2 A.M. 11 P.M.	3.15 A.M. 12 P.M.	.01 .40	
26	30.028	65.5	29.944	67.5	29.930	68	65.5	64.5	67.5	65.2	68	65	SE	SE	S	132	1.5	10	10	7	[illegible] A.M.	3.10 P.M.	.90	
27	29.850	66	29.882	68	29.912	67.2	60	61.7	68	66.2	67.2	61.2	SE	NNE	SSE	51	3.5	10	9	3	2 A.M.	9.30 A.M.	.49	
28	30.050	54	30.034	64.7	30.030	61.5	54	48	64.7	54	61.5	55	NNW	W	SSE	87	2.2	4	4	8				
29	30.028	56	29.992	64.5	29.912	66	56	54	64.5	59	60	60.5	SSW	SE	SSE	143	5.2	6	7	10				
30	29.940	60	29.974	69	29.978	60.7	60	56.5	69	61.5	60.7	55.2	W	WSW	W	113	2	4	9	10				

OCTOBER, 1872.

	Barometer (Thermometer attached).						Thermometer (Shade in open air).						Wind.					Clouds.			Rain and Snow.			
	7 A.M.		2 P.M.		9 P.M.		7 A.M.		2 P.M.		9 P.M.		7 A.M.	2 P.M.	9 P.M.									
	Observed Height.	Thermometer.	Observed Height.	Thermometer.	Observed Height.	Thermometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow Inches
1	[illegible]	55.5	29.862	65.5	29.842	59	55.5	50	[illegible]	54	56	50	NW	WNW	WNW	129	2.2	10	4	10	9.20 P.M.	10 P.M.	.06	
2	[illegible]	43	29.904	59	29.922	54	48	45.2	59	48	54	47.5	W	W	SW	[illegible]	6.2	2	[illegible]	0	3 A.M.	4.30 A.M.	.02	
3	[illegible]	53.5	29.690	61	29.720	59.5	53.5	49	61	55	59.5	53.7	SW	SW	WSW	141	[illegible]	9	[illegible]	0				
4	29.914	60.5	[illegible]	64	30.090	55.2	50.5	47	64	52.2	55.2	51.2	WNW	NW	WNW	97	[illegible]	0	0	[illegible]				
5	30.204	52.2	30.204	63.2	30.274	62.2	52.2	49.7	63.2	56.7	62.2	58	WNW	SE	SE	79	1.2	0	9	[illegible]				
6	[illegible]	63.5	30.266	70	30.192	67.5	63.5	59	70	58.5	67.5	62	SE	SE	SSE	[illegible]	1.7	[illegible]	[illegible]	5				
7	[illegible]	61.5	29.970	69.7	29.940	63.2	61.5	59	69.7	63.7	63.2	59.2	SE	SE	WSW	105	[illegible]	[illegible]	[illegible]	10	6.35 P.M.	10 P.M.	.17	
8	29.934	57	29.960	64	30.040	54	57	52.5	64	53.5	54	48.2	WNW	NW	WNW	[illegible]	3.7	[illegible]	8	0	[illegible] A.M.	4 A.M.	.07	
9	[illegible]	47	30.074	62	30.038	58.2	47	43.2	62	50	58.2	50.5	NW	WSW	WSW	103	2	0	0	0				
10	[illegible]	53.5	29.798	72	29.860	51.7	53.5	51	72	61	51.7	47.5	SW	S	WNW	173	13	[illegible]	[illegible]	10	6.15 P.M.	8.30 P.M.	.03	
11	[illegible]	43.2	30.042	51.2	30.134	44	43.2	38	51.2	42.5	44	37.7	W	NW	NW	[illegible]	4.2	2	[illegible]	2				
12	30.144	39.5	30.100	52	30.044	48.5	39.5	30	52	41.5	48.5	40	NW	W	SE	[illegible]	6.7	0	7	2				
13	29.8[illegible]	48	29.700	51.7	29.588	48	48	42	51.7	45	48	44.5	E	NNE	NW	85	3	9	7	5				
14	[illegible]	[illegible]	29.478	48.2	29.632	46	42.5	39.5	48.2	43.7	46	42	WSW	WSW	W	173	7	0	[illegible]	0				
15	[illegible]	43	[illegible]	51	29.884	49.5	43	39.5	51	42.5	49.5	42.5	W	WSW	SSW	[illegible]	4.7	0	[illegible]	3				
16	[illegible]	41	29.936	63.7	30.212	49	51	44	63.7	50.2	49	41	SSW	SW	NW	278	6.2	5	[illegible]	0				
17	[illegible]	41	[illegible]	[illegible]	30.260	53.5	41	36.5	[illegible]	[illegible]	53.5	49.7	N	E	ESE	129	[illegible]	3	8	7				
18	[illegible]	57	[illegible]	58	29.964	56.5	57	53.7	58	55	56.5	53.2	SSE	SSE	W	41	6.5	[illegible]	10	10	6.25 A.M.	7 P.M.	[illegible]	
19	[illegible]	47.7	[illegible]	55.5	29.956	45.7	47.7	44.7	55.5	47	45.7	41	WNW	WNW	WNW	155	6.7	5	[illegible]	0				
20	[illegible]	37	[illegible]	[illegible]	30.098	40.7	37	34.2	52.5	41.2	40.7	39	WNW	WNW	W	250	6	0	[illegible]	0				
21	[illegible]	44	[illegible]	65.7	30.172	59	44	38.7	65.7	52.2	59	50.5	SW	SW	SW	121	2.2	0	[illegible]	0				
22	30.214	[illegible]	[illegible]	66.5	30.264	61	50	40	66.5	56	61	57	SW	SE	SE	124	1.2	3	[illegible]	[illegible]				
23	[illegible]	58	[illegible]	63.5	30.330	50.2	56	55.2	63.5	60.2	50.2	49	SW	WSW	N	108	5.5	10	[illegible]	10	2 P.M.	[illegible]	[illegible]	
24	[illegible]	43.2	30.416	47	30.430	48	43.2	42	47	44.2	48	43.2	NNE	NE	NE	254	4.5	10	0	10	[illegible] A.M.	[illegible]	.44	
25	30.314	45	30.172	[illegible]	30.046	53.2	48	44.2	53	50.3	53.2	50.5	NE	NE	ENE	324	12.7	10	10	10	3.30 A.M.	[illegible] P.M.	.34	
26	[illegible]	[illegible]	[illegible]	62	[illegible]	[illegible]	53.5	[illegible]	62	58	58	56	NE	SE	WSW	321	10	10	9	10	1.15 A.M.	11.30 A.M.	[illegible]	
27	[illegible]	[illegible]	29.668	63	29.776	57.7	52.7	50.5	63	53.7	57.7	50.7	WSW	WNW	WNW	145	6	0	7	10	11.15 P.M.	[illegible]	[illegible]	
28	[illegible]	40.2	30.198	52	[illegible]	45	46.2	43	52	44	45	[illegible]	NNE	NNE	NNE	[illegible]	[illegible]	0	1	0	[illegible] A.M.	[illegible]	.10	
29	[illegible]	[illegible]	[illegible]	50	[illegible]	44.2	38.5	34	50	39.2	44.2	37	NNE	ENE	NE	[illegible]	4.7	0	0	0				
30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	39	[illegible]	49.2	40	[illegible]	37.7	NNE	ENE	ENE	173	[illegible]	0	0	0				
31	[illegible]	41.2	29.914	[illegible]	29.804	45	41.2	38	[illegible]	39.7	45	[illegible]	N	N	NW	[illegible]	[illegible]	9	[illegible]	10				

NOVEMBER, 1872.

Date.	Barometer (Thermometer attached).						Thermometer (Shade in open air).						Wind.					Clouds.			Rain and Snow.			
	7 A. M.		2 P.M.		9 P.M.		7 A.M.		2 P.M.		9 P.M.		7 A.M.	2 P.M.	9 P.M.									
	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches
1	29.822	45.2	29.820	59	29.920	50.5	45.2	37	59	42.7	50.5	43	WNW	W	W	282	15	3	1	0				
2	29.936	42	29.894	54	29.860	49	42	38	54	45	49	42	SW	SSW	SW	104	5	0	8	10				
3	29.762	43.2	29.826	44.5	29.940	45.2	43.2	41	44.5	42	45.2	42	ENE	NNE	NNE	85	0.7	10	9	0	6.30 A.M.	4 P.M.	.10	
4	30.092	40	30.176	50.5	30.280	45	40	36.7	50.5	41.7	45	39.5	WNW	N	N	136	0.2	2	6	0				
5	30.340	45.2	30.314	52.7	30.296	50.5	45.2	40.7	52.7	46.2	50.5	45.5	N	ESE	SE	51	1.5	0	8	9				
6	30.254	50	30.166	53.5	30.016	55	50	46	53.5	50.2	55	52	SE	S	SSE	132	2.2	9	10	10	1.45 P.M.	12 P.M.	.83	
7	29.642	48.5	29.482	53.7	29.500	49	48.5	47.2	53.7	44.7	49	40	NNW	W	WSW	221	12.7	10	1	7	0h.00m A.M.	9.30 A.M.	1.61	
8	29.526	43.5	29.610	49.5	29.772	46.2	43.5	37.5	49.5	40.5	46.2	39.2	SW	W	WSW	189	11.5	4	9	0				
9	29.876	40	29.920	49	29.980	43	40	36	49	40	43	37.5	SW	WSW	NW	227	4.2	0	8	2				
10	30.062	37	30.122	49.5	30.146	48.5	37	35.5	49.5	40.7	48.5	43	WNW	WSW	SW	45	0.2	0	0	0				
11	30.166	40.5	30.148	54.7	30.126	52.5	40.5	37.5	54.7	47.5	52.5	49.2	SW	SE	SE	51	1	0	9	10	10.30 P.M	12 P.M.	.02	
12	30.000	52.5	29.760	56.5	29.832	43.5	52.5	50.5	56.5	54	43.5	40.5	SE	SE	WNW	213	20	10	9	2	4 A.M.	6.30 P.M.	.42	
13	30.032	39	30.084	47	30.014	43	39	35.2	47	39.2	43	38	NW	NE	ESE	146	7	5	9	5				
14	29.872	46.2	29.650	54	29.616	48	46.2	44	54	51.5	48	46	SE	SE	W	108	1.5	10	10	4	2 A.M.	3 P.M.	.13	
15	29.684	35	29.770	37	29.924	33.2	35	31.2	37	36.2	33.2	32.2	WNW	WNW	W	[illegible]	13.2	0	6	6				
16	29.998	30.5	29.972	41.5	30.005	33.7	30.5	30.5	41.5	35	33.7	30.5	W	W	NNW	105	8.7	0	7	10	6.30 P.M.	10.15 P.M.	.08	1.00
17	30.230	24.2	30.350	40	30.444	35.5	24.2	23.7	40	39	35.5	32.5	WNW	WNW	WSW	200	8.2	0	7	0				
18	30.376	37.5	30.224	40.7	30.106	40	37.5	36.5	40.7	35	40	36.5	SW	WSW	WNW	107	1.5	9	9	2				
19	30.028	31.5	29.956	40.7	29.900	42	31.5	30	40.7	32.7	42	37.5	WNW	W	WSW	162	4.5	0	0	9				
20	29.816	39.2	29.836	36.7	30.032	29	39.2	33.7	36.7	30.5	29	25.2	W	NW	NW	260	11	10	9	0				
21	30.164	24	30.168	34.5	30.138	34.7	24	23.5	34.5	32.2	34.7	34.2	WNW	WSW	WSW	149	2.5	0	8	2				
22	29.980	37	29.808	37	29.808	35.2	37	35.2	37	35	35.2	33	WSW	E	W	93	5	10	10	5	9 A.M.	6 P.M.	.37	
23	29.982	35	30.066	42.5	30.104	37.5	35	32.2	42.5	36	37.5	33.2	W	W	WSW	218	3.2	10	5	3				
24	30.194	38	30.158	50.7	30.100	46.2	38	35	50.7	43	46.2	41.7	W	SW	SW	89	1	5	7	6				
25	29.934	40	29.854	50	29.994	47.7	40	36.7	50	42.5	47.7	42	W	WSW	W	210	2.5	9	10	9				
26	30.062	39.5	29.916	32.7	29.906	34	39.5	34.5	32.7	32	34	32.5	E	ENE	NNE	163	3.5	10	10	10	9 A.M.	10.15 P.M.	.26	
27	30.020	32.2	30.078	40.2	30.138	37.2	32.2	30.2	40.2	35	37.2	33.7	WNW	WSW	W	147	2	0	5	0				
28	30.216	26.5	30.124	38	29.980	36	26.5	25.5	38	34	36	31	NW	E	SE	114	2.5	0	4	0				
29	29.732	26.7	29.654	27	29.670	18.5	26.7	26.2	27	26.7	18.5	18	NNW	NW	NW	241	18	10	9	0	3 A.M.	9 A.M.	.26	2.50
30	29.626	16.2	29.650	22.2	29.790	20	16.2	16	22.2	22	20	19.5	WNW	W	W	428	17	0	7	10				

DECEMBER, 1872.

Date.	Barometer (Thermometer attached). 7 A.M. Observed Height.	7 A.M. Thermometer.	2 P.M. Observed Height.	2 P.M. Thermometer.	9 P.M. Observed Height.	9 P.M. Thermometer.	Thermometer (Shade in open air). 7 A.M. Dry.	7 A.M. Wet.	2 P.M. Dry.	2 P.M. Wet.	9 P.M. Dry.	9 P.M. Wet	Wind. 7 A.M. Direction.	2 P.M. Direction.	9 P.M. Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	Clouds. 7 A.M.	2 P.M.	9 P.M.	Rain and Snow. Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches
1	29.940	16.7	29.912	28.5	29.850	30.2	16.7	16.2	28.5	28	36.2	35.7	W	WSW	S	330	7.5	0	7	10	1 P.M.	12 P.M.	.01	
2	29.752	37	29.710	42.7	29.608	43	37	33.7	42.7	36.5	43	40	WSW	SW	WSW	159	23.5	7	9	10	0h.0m. A.M. 7.50 P.M.	1.20 A.M. 10.10 P.M.	.04 .11	.25
3	29.802	38	[illegible]	43.7	29.992	39.2	38	33.7	43.7	36.2	39.2	35.2	SW	W	W	330	17	3	3	4				
4	[illegible]	35.2	30.124	37.2	30.188	35	35.2	33.2	37.5	37	33	32.5	WNW	NW	W	234	4.7	7	4	8				Not
5	30.180	30	30.100	33.2	30.102	34.5	30	29	33.2	30.5	34.5	33	WNW	WSW	W	115	2.5	10	10	10	1.30 P.M.	5 P.M.		measurable
6	30.122	33.2	30.146	40.7	30.240	33	33.2	32.7	40.7	35	33	31	WSW	WNW	NW	201	11.7	0	4	5				
7	30.210	30	30.174	36	30.082	34	30	27	36	20.7	34	31.5	NNW	E	ESE	50	0.7	8	3	8				
8	[illegible]	42.2	[illegible]	45.2	29.590	39	42.2	38	45.2	42.2	39	36.7	SSE	SSW	W	129	3	9	10	2	1 P.M.	5 P.M.	.14	Not
9	[illegible]	36.5	29.406	27	29.608	15.2	36.5	34	27	26.2	15.2	15	W	NW	NW	263	18	9	10	5	1 P.M.	4 P.M.		measurable
10	29.784	15.5	29.955	23	30.002	21	15.5	15	23	22.5	21	20.7	WNW	WNW	WNW	578	26.5	2	3	0				
11	30.212	22	30.222	27.2	30.234	29.5	22	21.5	27.2	26.2	20.5	29	WNW	NW	NW	109	3.7	8	8	6				
12	[illegible]	19.7	30.000	18	29.936	13.7	19.7	19	18	17.2	13.7	13.5	NE	N	NNW	236	10.2	9	9	2				
13	29.978	20.7	[illegible]	30.5	29.946	28.5	20.7	20.5	30.5	30	28.5	28.2	W	W	WSW	200	5.5	5	9	2				
14	[illegible]	31	30.104	39.7	[illegible]	39	31	30.5	39.7	38.7	39	37	W	WNW	SSE	219	3.2	6	7	4				
15	29.848	34.7	[illegible]	47	30.074	31	34.7	34.5	47	41.5	31	28	WSW	W	N	201	11	0	3	0				
16	30.126	32.2	29.970	31.5	29.834	35.5	32.2	28.5	31.5	30.5	35.5	33	NNW	ENE	ENE	79	2	9	10	10	1.30 P.M.	11.30 P.M.	.24	1.00
17	30.036	30.5	30.153	33.7	30.254	32.5	30.5	29.5	33.7	32.7	32.5	32.2	NW	NW	W	137	5	0	7	4				
18	30.146	28	29.854	30.5	29.882	30	28	27.7	30.5	28.5	30	28	NE	E	W	137	5.5	10	10	2	9 A.M.	4 P.M.	.34	2.25
19	30.302	24	30.384	33.2	30.204	29.5	24	22	33.2	32	29.5	27.7	NW	SW	ESE	134	6	4	7	10	10.50 P.M.	12 P.M.	.01	Snow.
20	29.696	36.7	29.648	40.2	29.792	40	36.7	36	40.2	38	40	36.5	E	W	W	198	7.2	10	10	10	0h.0m A.M. 10 P.M.	0.30 A.M. 12 P.M.	1.33 .05	2.00
21	30.048	26	30.054	31	29.978	30.5	26	25	31	29.5	30.5	29.5	NW	NNW	W	205	6.7	6	3	10				
22	30.010	14.5	30.120	8	30.170	4.2	14.5	[illegible]	8	7.7	4.2	4.2	NW	NNW	W	315	12.5	0	0	0				
23	29.954	10.7	[illegible]	30	29.994	24	10.7	10.7	30	29	24	24	WNW	W	WNW	197	15	10	8	—				
24	30.242	7.5	30.300	12.2	30.356	10	7.5	7.5	12.2	11.7	10	9.7	NNW	NW	WNW	207	4.7	6	6	0				
25	30.370	6	[illegible]	13.5	[illegible]	10.7	6	5.5	13.5	12	10.7	10.5	NNW	NE	NE	158	3.5	4	4	10				
26	29.840	9	29.430	12	29.516	6	9	9	12	11	6	6	ENE	NNE	N	415	12.2	10	10	10	5 A.M.	7 P.M.	.65	18.00
27	29.600	6	[illegible]	12.5	29.725	10.5	6	6	12.5	11.7	10.5	10.5	NNW	NW	W	245	7.7	10	9	0				
28	29.942	13.5	30.046	19.2	30.142	15.2	13.5	12.7	19.2	18.2	15.2	15	W	WSW	W	341	5.2	4	1	0				
29	30.198	20.2	30.200	24	30.280	20	20.2	20	24	21	20	19	WNW	WNW	NW	135	1.5	6	9	0				
30	30.360	14.2	30.304	21	30.356	23.5	14.2	14	21	20	23.5	23	NW	NW	NW	88	1	0	8	10	10.45 P.M.	12 P.M.	.03	1.50
31	30.114	23.5	[illegible]	33	30.134	37	23.5	20.5	33	32.2	37	35.7	NE	W	WNW	74	0.5	10	10	10	0h 0m. A.M.	7.20 P.M.	.23	2.00

REPORT OF THE DIRECTOR

OF THE

NEW YORK METEOROLOGICAL OBSERVATORY,

CENTRAL PARK,

FOR 1873.

To the Board of Commissioners of the Department of Public Parks:

GENTLEMEN:—For the past year (1873), a complete set of records from the Self-recording Instruments has been obtained. There has also been constructed a new anemometer to register the force, velocity and direction of the wind, and thus provide duplicates in case of accident. A new Self-recording Thermometer has likewise been made. It gives very satisfactory results.

My purpose in this report is more particularly to present a continuation of that portion of the report for last year, relating to storms crossing the Atlantic, and to show how its results were arrived at.

The following is the question to be answered:

Do any American storms cross the Atlantic to Europe?

Great interest has been manifested, both here and abroad, in this topic. The Astronomer Royal of England, Sir G. B. Airy, in his annual address to the Royal Society, remarks: "The daily charts (first introduced by M. Le Verrier, but now issued on a highly extended plan by the meteorological office) are circulated among a large list of subscribers. I think that comparison of the records of the various atmospheric elements upon these charts, continued from day to day, would be more likely than anything yet published to throw light upon the difficult question of causes and effects in meteorology. Daniel Draper, Esq., has traced the courses of rectilinear waves of cold and of storm across the United States. He has also shown that wind storms are propagated from the shores of the United States to the shores of Britain ; and in eighty-six predictions of storms to occur on the British coasts, only three were failures."

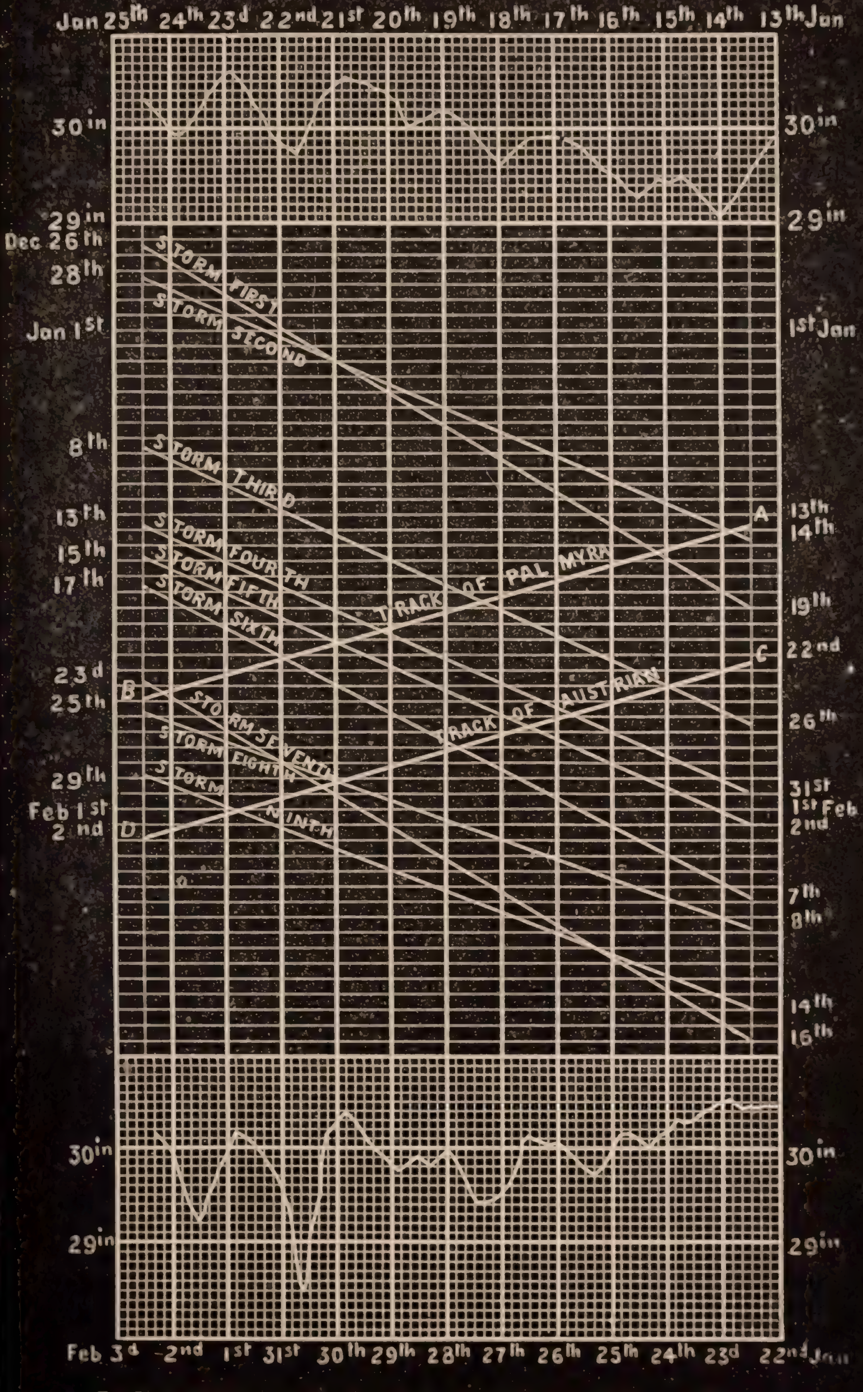
I have, therefore, been led to study more closely this subject, and to show how those results were obtained.

The following is the rule I gave for predicting the arrival of a storm from America in Europe. If a low barometer, with an easterly wind, be prevailing here, the mean travel of this wind per day for twenty-four hours before and twenty-four hours after the time of the low barometer, is to be divided into 4,200 ; this will give the number of days that it would require for the storm to cross.

If several of these storms occur at short intervals, it is plain that a ship sailing from Europe to America must encounter them in succession, and that the time and place on the sea where she will so meet them may be predicted. Now, if on examining the log of such a ship it turns out that the predictions are verified, it necessarily follows that the low barometers and high winds she encounters belong to the storms that left America.

I shall select two examples out of a great many cases I have examined, offering them as proofs of the correctness of the foregoing principles. The first of these is drawn

BAROMETRIC CURVE FROM THE PALMYRA'S LOG



BAROMETRIC CURVE FROM THE AUSTRIAN'S LOG
1870

from the log of the steamship *Palmyra*, during her voyage between January 12th and January 24th, 1870. In that interval there were seven storms that left New York, and she encountered them all near the predicted times and places. The second example is furnished by the steamship *Austrian*, which left nine days later than the *Palmyra*. She should have encountered in succession all the *Palmyra's* storms which had not reached Europe at the time of her departure, and two others that had subsequently arisen, accordingly it will be seen that she did so.

In the accompanying chart it will be observed that the numbers on the left-hand side mark the days on which disturbances left New York and the ship's arrival. Those on the right-hand side the calculated arrivals of storms at Valencia and the ship's departure from Queenstown. At the top of the chart is given the barometric curve from the log of the *Palmyra*. The numbers on its upper side are the days of the month in which the voyage was made, each small square representing the observation for every fourth hour of the day. On the sides is given the height of the barometer in inches and tenths.

On examining the barometric curve we find that there are low readings at midnight of the 13th, midday of the 15th, midnight of the 17th, at 4 P. M. of the 19th, at 4 P. M. of the 21st, and also at 9 P. M. of the 23d, showing that the ship experienced six distinct low readings of the barometer in her voyage from the east towards the west.

Let us now examine that portion of the chart relating to this passage of the ship, marked by the line A B, which is drawn from the day she left Queenstown to the day of her arrival at New York, that is from midday of January 13th to midday of January 24th, as is shown by the figures on the sides, and also on the top of the chart. The lines crossing this line are the tracks of the storms at that time passing from New York to Valencia, numbered storm first, storm second, &c.

STORM FIRST.

We find by the registers of this observatory for December 26th, 1869, that there was a disturbance occurring here having all the characteristics of one that would cross the Atlantic to Europe. The reading of the barometer for the day previous was 30.520 inches, but now it had fallen to 30.004 at 9 P. M. the 26th. If we now calculate on the basis laid down in my report for the year 1872, we shall find that it took this northeast storm 23 days to cross from New York to Valencia or Falmouth. The travel of the wind 24 hours before 9 P. M. was 226 miles in twenty-four hours ; after that time it had traveled 143 miles ; the mean of these two numbers is 184 miles. Dividing 4,200 by this number we have for the time of its arrival January 18th, 1870. The British Quarterly Weather Report for that day gives the following facts, that the barometer had fallen about two-tenths of an inch, and the greatest velocity of the wind was 28 miles per hour. From our chart it appears that the track of the *Palmyra*, or the line A B, crossed this first storm line on January 15th. By the barometric curve at the top of the chart we find that she encountered a depression in the barometer at that time.

STORM SECOND.

On December 28th, 1869, we have indications of another disturbance about to cross the Atlantic. This we shall designate as storm second. Its peculiarities are these: the barometer fell from 30.064 inches the day before to 29.686 inches at 9 P. M. this day, being a depression of .378 of an inch. The wind was from the northeast. It traveled 223 miles before, and 249 miles after the time of the lowest barometer. On calculating as in the case of the first storm, we find that this took 17 days to cross, making its arrival at Valencia January 14th. The rate of movement in this second disturbance was faster than in the former one. This storm left two days later and arrived four days earlier. On consulting the chart we see that such was the case; it overtook the first when it had traveled only one quarter of the distance across the ocean from New York. It was to this class of storms that I had reference in the report of 1872. "It will be noticed in these tables that sometimes storms leaving this side of the Atlantic several days apart, arrive in the British Islands on the same day. When this is the case the storm is generally a very severe one. There are also instances in which the last storm overpasses the first by several days. It will be observed that there are variations in the tracks of these atmospheric disturbances, depending on the course they are pursuing when they leave the American coast, and this will determine the point at which they will be most severely felt on reaching Europe."

These atmospheric waves do not destroy or annihilate each other any more than do the waves produced by throwing two stones into placid water a little distance apart; we see the waves cross each other, and proceed till their effects are lost. So it is with these atmospheric waves. This is a well known property of all undulating motions which proceed unimpaired after intersecting each other.

The British Weather Reports show that on January 14th the barometer had fallen seven-tenths of an inch, and the maximum velocity of the wind was 44 miles per hour. In the chart we find by the log of the *Palmyra* that there was a low barometer on the evening of the 13th, the force of wind was 10 of Beaufort's scale, 12 on that scale being a hurricane.

STORM THIRD.

We shall now proceed to storm third, and see what an examination of it will show. From the registers of this Observatory we find that there was an atmospheric disturbance extending over several days, but the culmination was on January 8th, when the barometer fell three-tenths of an inch in 24 hours, reaching its lowest point at 1 P. M.—the temperature also fell 14 degrees during the day. The travel of this cold easterly wind 24 hours before the low barometer was 166 miles, after it 289 miles, the mean of these numbers being divided into 4,200 gives 18 days. This storm should therefore arrive at Valencia on January 26th. The European reports show a disturbance there, in which there was a sudden decline of temperature and a falling barometer, with a high wind extending over several days. In our chart we find on the log of the ship a low barometer on the morning of January 18th, with a reported wind force of 7 Beaufort; but it also shows that the storm and ship met each other in the middle of that day. This is easily accounted for. The ship's track, or the line A B, as drawn here, represents her as moving at the same number of miles per day, but the daily run of a ship varies very much, and in this case it is very clearly shown that since the last storm she had not run at the average speed as represented by the line A B. and therefore met the storm a few hours earlier than is represented on the chart. We shall also find this to be the case with other storms she met before her arrival at New York.

STORM FOURTH.

The next storm to be discussed is the fourth one from New York, on January 13th, the lowest reading of the barometer at this Observatory was 29.884 at 2 P. M., the travel of the wind before and after that time was 142 and 298 miles, the mean of these two numbers, being divided into 4,200 give 19 days, making the storm's arrival at Valencia February 1st. On an examination of the English records we find a falling barometer with a high wind prevailing at Valencia on that day. The log on the accompanying chart shows a low barometer at 4 P. M. January 19th. The intersection of the ship and fourth storm-line occurred in the morning of the next day. There is thus a greater difference in their time of meeting than in the case of the previous or third storm. In other words, these storms were showing their effect by reducing the rate of the ship on the days of their occurrence, as is also seen by her log.

STORM FIFTH.

This occurred on January 15th. It was entirely distinct from that of the 13th, the barometer fell from 30.512 at 1 P. M. to 29.772 at 9 P. M. The travel of the wind in twenty-four hours before and after that time was 300 and 184 miles. On computing, as in the other examples, we find that it required 17 days to reach Valencia, which would be February 1st. The records of that station for this date give a low barometer and a high wind of 50 miles per hour. On the log we find that the barometer began falling very rapidly on the morning of January 21st, and continued to do so till 4 P. M., when it commenced a rapid upward movement. More than two days were required to complete this fluctuation.

STORM SIXTH.

This disturbance occurred on January 17th, at New York, when the lowest barometer was reading 29.882 at 11 P. M., having fallen .33 hundreds of an inch in 12 hours. The travel of the wind before and after this depression was 215 miles and 180 miles. If we proceed as in the case of the other disturbances, we find that it required 21 days for this to cross the Atlantic, which would make its arrival on the other side February 7th. On looking over the English records it is seen that the barometer fell about 55 hundredths of an inch in twenty-four hours, the maximum travel of the wind being 55 miles per hour at Valencia. From the log of the *Palmyra* it appears that this storm was evidently connected with the preceding one, as the duration of the low barometer had lasted several hours. Here it may be well to remark, as a known fact, that the rise and fall of the barometer on board ship is not the same as on land; the motion of the vessel alters it slightly, this depending on whether the ship is steaming with or against the disturbance. In the present case, where two storms are close together, a ship may pass from one into the other, and the barometer only mark a slight variation. This is what occurred on the morning of the 22d.

STORM SEVENTH.

The seventh storm has now to be considered. From the registers of this observatory we find the following data. On January 23d the temperature had risen 14 degrees, and the barometer fallen 45 hundredths in the last twenty-four hours, the lowest reading being at 2 P. M. The travel of the wind before and after that time for twenty-four hours was 145 and 203 miles. The crossing, therefore, took 24 days, making the time of its arrival at Valencia February 16th. By the report of that station for the 15th, we find a slight fluctuation in the barometer, and the wind traveling at 35 miles per hour.

By the chart this was the last disturbance the *Palmyra* met, being on the morning of the day of her arrival at New York. Her log shows that she experienced a low barometer early in the morning.

STORM EIGHTH.

On January 25th there was at New York another disturbance about to cross. The following are its data: At 2 P. M. there was a low barometer; it fell 55 hundredths of an inch in 14 hours; the velocity of the wind twenty-four hours before and after that time was 305 and 265 miles; the mean of these numbers being 285 miles, therefore it required 14 days to cross, making its time of arrival at Valencia February 8th. On referring to the English records we have: "Pressure continued to decrease at all the channel stations during the 7th, and a distinct minimum is noticeable at Falmouth shortly before 3 A. M. on the 8th, subsequent to which a brisk rise set in, which had the effect of throwing the area of low pressure to a position slightly to the northward of that which it had occupied on the previous day."

"A strong easterly breeze commenced to blow at Holyhead at noon, and shortly after increased to a slight gale, but moderated at nightfall, recommencing, however, at midnight and lasting for 15 hours. Heavy snow set in in the north of England in the afternoon of the 8th. During the day a steady rise of the barometer is recorded at all the observatories, while a fall has begun in Norway, so that by the morning of the 9th the area of low pressure in Ireland has entirely disappeared, and the isobares run nearly due W. N. W. and E.S.S. The lowest readings are in the south of France, where an easterly gale is reported from Golfe du Lion and from Florence. The only strong wind blowing in these islands was at Holyhead, where at noon the velocity of 54 miles an hour from E. by north was registered."

On an inspection of our chart the first thing we discover is that this fast-traveling gale overtook the previous one at about one-eighth the distance across the ocean, closely resembling in this respect the first and second ones described at the commencement of this report. In a future paragraph, on the voyage of the *Austrian*, we shall give a description of the results of this crossing.

STORM NINTH.

We have now come to storm ninth, the last shown on our chart. We might continue them for the rest of the year with the same results. In this there was a decline in the temperature of nine degrees, and a fall in the barometer was 64 hundredths of an inch in twenty-four hours, the lowest occurring at 9 P. M. January 29th. The velocity of the wind twenty-four hours before and after that time was 167 and 339 miles; the mean of these numbers is 253 miles, this being divided into 4,200 gives 16 days to cross, making the time of its arrival at Valencia February 14th. The report of that station shows a fall of 4-tenths of an inch for the barometer, and a maximum travel of wind 40 miles per hour. I think we cannot do better than quote from the British Quarterly Weather Report the condition of the weather at that date—it is as follows: "February 13th presents us with a very well marked instance of a Polar gale, sweeping all over central and southern England, and north and west France, and extending westward to Corunna and southward to Toulon. The *Carl George*, which was in the channel, and the *Decapolis*, which was off Cape Finisterre, felt the full force of this gale."

Thus far we have been studying the crossing of storms and the track of the R. M. Steamship *Palmyra*, Captain William Watson. We have seen how faithfully he has worked for science in taking and recording Meteorological Observations in the log of his ship. It is to be regretted that it is not a more common practice among commanders of vessels to keep accurate instrumental observations, and forward them to some public institution, where they may be studied and their results published.

We will now turn our attention to another valuable log, kept by Captain James Wylie, steamship *Austrian*, printed by the Meteorological Office of the British Government in "A Discussion of the Meteorology of the part of the Atlantic lying north of 30° N., by Captain Henry Toynbee." On the bottom of the chart accompanying this Report, I have traced the barometric curve of this log. The *Austrian*, on January 22d, was in the vicinity of Queenstown, and she arrived at Portland, Maine, U. S., on February 2d. Her voyage from Queenstown, therefore, commenced nine days after the *Palmyra* had left that port, and she arrived on this side nine days after that ship. Therefore, each made its trip across in eleven days. On an examination of her log on our chart, we find that she had six low barometers, respectively, occurring on the mornings of January 24th, 25th, 27th, 28th, a very low one at 2 P. M., 30th, and another low one midday February 1st. Let us now see the relation of these low barometers to the passage of this ship across the storm-lines that we have been examining in the case of the *Palmyra.* We therefore draw a line marked C D, from the day of her departure from the other side to the day of her arrival on this, as we did in the case of the *Palmyra.* She crossed the line of storm third on the morning of the 24th, storm fourth on the evening of the 25th, storm fifth on the 26th, storm sixth, evening of the 27th. In these disturbances there is a similarity to those crossed by the *Palmyra.* But on January 30th, we find storm seventh and eighth crossing near the *Austrian's* track. By her log the barometer fell nearly two inches in 12 hours, but according to our chart we find that she passed through them a few hours before their intersection. If she had traveled faster she might have met the same fate that probably befel the *City of Boston*, which left Halifax on January 28th. I quote here a few paragraphs from the same source to which I referred in the case of the *Austrian's* log. Mr. Allison, in his observations, says: " I was in Halifax and saw the *City of Boston* sail on the 28th January, 1870; it was a very fine day for that season of the year. A. M. of the 29th it began to breeze up from the southward and eastward; P. M. it blew a very heavy gale from the same quarter, the barometer falling very rapidly; A. M. of the 30th, the barometer in my house had fallen to 28.35, which is much lower than I ever knew in this locality."

The *Delta* sailed from here about two hours before the *City of Boston* sailed for England, and that ship's journal may give you some information about the weather."

"The *Delta*, from the time of leaving port, had a moderate northwesterly wind, veering to north, with a smooth sea. The barometer, a standard instrument from this office, rose until the wind veered east of north at noon of the 29th, when it fell and the wind veered more easterly, with a turbulent sea. This change in the state of the sea came on with a rise of 11°, and eventually of 21° in its temperature."

"At 8 P. M., in about 40° 24′ N., 64° 30′ W., the wind was freshening from E. by S., force 7, the barometer having fallen 2 inches in four hours, and the sky overcast.

"At midnight the barometer was about 29.65, having fallen 4 inch in four hours, and there was rain."

"At 4.18 A. M. of the 30th, in 39° 38′ N., and 64° 30′ W., the wind was S. E. by E, 8, and between this and 8 A. M., shifted to west 11 in a heavy squall, the barometer having continued to fall a tenth per hour, until this shift, when there was a heavy cross sea and lightning in the S. W."

We have the following extracts of the *Austrian's* log for January 30th:

"11.45 A. M. Blowing a heavy gale with furious squalls and high confused sea, ship laboring and rolling excessively, and shipping much heavy water with much force, over all."

"4.45 P. M. Gale increasing, with terrific squalls, tremendous sea rising."

"5.45. P. M. Blowing a hurricane."

"7.45 P. M. Wind still veering to the westward, and blowing a perfect hurricane; spoondrifts flying like smoke along the surface, and sea running in liquid mountains."

"11.45 P. M. Gale inclined to moderate; wind W. N. W., 10."

"7 A. M. 31st. Weather improving W. N. W., 8."

When we recall to mind that the *Austrian* was steaming from Liverpool to Portland, Maine, her course was south of that of the *City of Boston*, which was running from Halifax to Liverpool. By our chart we can readily perceive that she probably passed through these storms before they had crossed each other. The steamer *Delta* evidently passed them further south, and earlier. Even here the eighth did not stop, but continued its course across the ocean until it met the steamers *City of Cork*, *Weser* and *Tarifa*, at about 500 miles or two days' sail from the Irish coast. Its violence was so great that it caused the *Weser* to heave to for five hours. The barometer on the *Tarifa* fell nearly two inches in ten hours. The storm then arrived on the coast of Europe.

Storm ninth, we see by the log of the *Austrian*, was experienced by her on February 1st.

It would appear from this that had there been observations and calculations made at the time of the sailing of these ships, they might have been forewarned of these atmospheric disturbances.

It is now that the grand future of ocean meteorology is beginning to appear, for when self-recording instruments shall have been established in the southern and western portions of this continent, they will yield a far more correct and reliable record than is possible by personal observations, and by furnishing estimates of the passage of atmospheric disturbances across the American continent, enable us to predict more correctly their movements across the Atlantic ocean.

The conclusion we have arrived at in this and last year's report is, that storms leaving America often cross the Atlantic, and the places where ships may meet them at sea, and the times of their arrival in Europe, may be predicted within certain limits.

Annexed, as in former reports, are annual and monthly tables for the year 1873.

All which is respectfully submitted.

DANIEL DRAPER,
Director.

I.

TABLE *showing the Heights of the Barometer, monthly, for the year* 1873, *reduced to Freezing Point, Fahrenheit.*

MONTHS. 1873.	MEAN AT 7 A.M.	MEAN AT 2 P.M.	MEAN AT 9 P.M.	MONTH MEAN.	MAXIMUM.		MINIMUM.		DIFFERENCE OR RANGE.
					HEIGHT.	DATE.	HEIGHT.	DATE.	
January	30.001	29.959	29.984	29.981	30.556	10 A.M., 15th.	29.422	8 P.M., 4th.	1.134
February	29.899	29.834	29.874	29.866	30.428	9 A.M., 15th.	29.006	2.30 P.M., 21st.	1.422
March	29.856	29.810	29.879	29.848	30.596	9 A.M., 6th.	28.922	5 P.M., 29th.	1.674
April	29.837	29.797	29.829	29.821	30.208	11.30 A.M., 5th.	29.403	4 P.M., 12th.	.805
May	29.922	29.886	29.912	29.906	30.318	2 P.M., 31st.	29.436	12 M., 3d.	.882
June	29.904	29.874	29.885	29.887	30.307	9 A.M , 26th.	29.438	4 A.M., 5th.	.869
July	29.918	29.899	29.904	29.907	30.205	9 A.M., 13th.	29.637	4 A.M., 18th.	.568
August	29.976	29.949	29.966	29.964	30.266	9 A.M., 29th.	29.727	4 A.M., 26th.	.539
September	30.000	29.961	29.989	29.983	30.322	9 A.M., 9th.	29.560	6 P.M., 19th.	.762
October	29.975	29.929	29.965	29.956	30.443	9 A.M , 15th.	29.215	9 P.M., 20th.	1.228
November	29.861	29.819	29.878	29.853	30.528	9 P.M., 36th.	28.736	5 A.M., 18th.	1.792
December	30.063	30.008	30.040	30.037	30.563	9 A.M., 8th.	29.223	1 A.M., 28th.	1.340

Year mean at 7 A.M.	29.934
" 2 P.M.	29.894
" 9 P.M.	29.925
Mean for the year	29.917

Maximum for the year	30.596 at 9 A.M., March 6th.
Maximum for the year	28.736 at 5 A.M., November 18th.
Difference or Range	1.860

II.

TABLE *showing the state of the Thermometer, monthly, for the year* 1873.

MONTHS. 1873.	MEAN AT 7 A.M.	MEAN AT 2 P.M.	MEAN AT 9 P.M.	MONTH MEAN.	MAXIMUM.		MINIMUM.		DIFFERENCE OR RANGE
					DEGREES	DATE.	DEGREES	DATE.	
January	26.00	31.11	28.71	28.58	54	7 A.M., 17th.	−1	7 A.M., 30th.	55
February....	26.37	31.33	30.03	29.53	50	4 P.M., 4th.	−1	7 A.M , 24th.	51
March	31.79	39.39	36.06	35.71	55	5 P.M., 23d.	9	6 A.M., 5th.	46
April........	42.94	50.41	46.83	46.09	65	5 P.M., 30th.	32.7	9.30 A.M., 12th.	32.3
May........	53.74	64.43	58.31	58.80	87	4.15 P.M., 28th.	37.7	5 A.M., 4th.	49.3
June........	64.89	76.41	69.78	70.33	92	5 P.M., 19th.	51.2	4.30 A.M., 1st.	40.8
July........	71.21	80.06	75.02	75.43	94.2	4 P.M., 25th.	59.5	5 A.M., 7th.	34.7
August.	67.67	76.70	71.68	72.00	90	2.20 P.M., 3d.	55.3	6.50 A.M., 24th	34.7
September. .	60.82	70.58	64.84	65.38	89	3.15 P.M., 1st.	44	5 A.M., 15th.	45
October.....	50.74	61.12	55.35	55.79	72	4 P.M., 5th.	33	7 A.M., 29th.	[illegible]
November. .	33.63	40 66	36.78	37.01	57.5	11 A.M., 3d.	20.5	6 A.M., 20th.	37
December ..	33.80	39.45	36.48	36.52	66	2 P.M., 4th.	18	12 P.M., 1st.	48

Year mean at 7 A.M.	46.97
" 2 P.M.	55.14
" 9 P.M.	50.82
Mean for the year	50.98

Maximum for the year	94.2	at 4 P.M., July 25th.
Minimum for the year	−1	at 7 A.M., January 30th.
Difference or range	95.2	

III.

TABLE *showing the state of the Wet Bulb Thermometer, monthly, for the year* 1873.

MONTHS. 1873.	MEAN AT 7 A.M.	MEAN AT 2 P.M.	MEAN AT 9 P.M.	MONTH MEAN.	MAXIMUM.		MINIMUM.		DIFFERENCE OR RANGE.
					DEGREES	DATE.	DEGREES	DATE.	
January.....	24.04	27.76	26.53	26.11	48	8 A.M., 17th.	−1	7 A.M., 30th.	49
February. ..	24.41	28.61	27.84	26.95	44.5	4 P.M., 4th.	−1	7 A.M., 24th.	45.5
March	29.81	34.71	32.98	32.50	48.2	3 P.M., 29th.	9	6 A.M., 5th.	39.2
April........	38.76	43.98	41.63	41.46	56.7	11.30 A.M., 11th.	31	5.30 A.M., 26th.	25.7
May.........	47.57	53.48	50.83	50.63	71.7	0h 35 m PM., 28th.	35	5 A.M., 14th.	36.7
June........	57.70	63.92	60.74	60.78	76.5	5.25 P.M., 19th.	46	5 A.M., 9th.	30.5
July.........	64.11	68.03	66.31	66.15	77	3.30 P.M., 25th.	50.5	5 A.M., 7th.	26.5
August.....	63.16	66.59	65.63	65.13	78.2	2 P.M., 3d.	49.5	6 A.M., 24th.	28.7
September. .	57.03	60.90	59.47	59.13	77	3.15 P.M., 1st.	40	4 A.M., 15th.	37
October	46.55	51.62	49.43	49.20	66	7 P.M., 20th.	29.5	6.20 P.M., 29th.	36.5
November...	30.98	35.80	32.89	33.22	48.5	1 P.M., 8th.	20	6 A.M., 20th.	28.5
December ..	31.06	35.13	33.30	33.16	59.5	1.35 P.M., 4th.	18	12 P.M., 1st.	41.5

Year mean at 7 A.M.	42.93	
" 2 P.M.	47.54	
" 9 P.M.	45.63	
Mean for the year....................................	45.36	
Maximum for the year....	78.2	at 2 P.M., August 3d.
Minimum for the year....................................	−1	at 7 A.M., January 30th.
Difference or range....................................	79.2	

IV.

TABLE *showing the Duration and Depth of Rain and Snow, monthly, during the year* 1873.

RAIN.

MONTHS.—1873.	NO. OF DAYS IN WHICH RAIN DESCENDED.	DURATION.			DEPTH IN INCHES.	TOTAL DEPTH IN INCHES.	DEPTH OF WATER PRODUCED IN INCHES.	REMARKS.
		Days.	Hours.	Minutes.				
January	10	2	13	05	4.14	4.14	......	
February	3	0	12	20	.47	4.61	....	
March	9	3	3	40	2.06	6.67	......	
April	15	4	0	20	4.16	10.83	......	
May	11	3	19	55	3.69	14.52	.....	
June	7	0	19	15	1.28	15.80	......	
July	12	2	8	45	4.61	20.41	......	
August	15	4	1	45	9.56	29.97	......	
September	14	2	17	35	3.14	33.11	......	
October	10	2	2	05	2.73	35.84	......	
November	6	1	19	15	3.69	39.53	......	
December	7	1	5	50	1.09	40.62	......	
						7.37	......	Snow water.
Totals	119	29	3	50	40.62		47.99	

SNOW.

MONTHS.—1873.	NO. OF DAYS IN WHICH RAIN DESCENDED.	DURATION.			DEPTH IN INCHES.	TOTAL DEPTH IN INCHES.	DEPTH OF WATER PRODUCED IN INCHES.	REMARKS.
		Days.	Hours.	Minutes.				
January	5	2	7	00	10.56	10.56	1.20	
February	7	3	4	10	18.75	29.31	3.33	
March	2	0	4	45	.37	29.68	.03	
November	4	0	16	00	2.00	31.68	.94	
December	6	3	5	30	9.25	40.93	1.87	
Totals	24	9	13	25	40.93	....	7.37	

V.

TABLE *showing the Velocity of the Wind, and Prevailing Winds, during the year* 1873.

MONTHS—1873.	MILES.	DAILY MEAN.	HOURLY MEAN.	PREVAILING WINDS.
January	5,664	182.7	7.60	West.
February	6,223	222.2	9.25	West.
March	8,293	267.5	11.14	West.
April	5,461	182.0	7.58	West.
May	5,423	174.9	7.27	Southeast.
June	4,764	158.8	6.61	Southeast.
July	4,102	132.3	5.51	Southeast.
August	4,297	138.6	5.73	East-northeast.
September	3,882	129.4	5.39	West-southwest.
October	5,067	163.4	6.78	West.
November	5,441	181.3	7.55	West.
December	4,822	155.5	6.47	West.

The total distance traveled by the wind during the year 1873 was 63,439 miles.

The prevailing wind was west.

VI.

TABLE *showing the Points from which the Wind came during the Year* 1873.

POINTS.	JANUARY.			FEBRUARY			MARCH.			APRIL.			MAY.			JUNE.			JULY.			AUGUST.			SEPTEM'R.			OCTOBER.			NOVEMB'R.			DECEMBER			TOTAL.
	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.	
N	1	1	0	2	2	4	1	1	0	2	1	1	0	0	2	1	3	2	1	1	0	0	0	0	1	2	0	2	2	2	0	1	0	3	1	3	43
NNE	1	2	3	2	1	0	0	2	0	0	2	0	0	1	0	0	2	1	1	0	0	6	2	2	2	2	4	2	3	2	2	0	2	1	3	4	55
NE	4	4	3	2	2	0	2	1	2	1	0	2	3	2	0	4	1	1	2	0	0	2	1	2	3	2	0	1	1	1	1	1	1	3	3	2	60
ENE	5	3	2	0	1	2	1	0	1	3	2	1	2	2	3	2	1	0	2	2	0	5	6	1	0	3	0	0	0	0	1	0	1	3	4	1	60
E	1	0	2	3	1	1	0	0	1	3	1	3	7	2	2	2	1	2	0	3	3	2	3	2	2	0	2	2	2	2	2	0	0	1	0	1	59
ESE	1	0	2	1	1	1	1	0	1	0	1	0	2	3	1	2	2	2	1	0	0	0	1	1	0	0	1	0	0	1	0	1	0	0	0	0	27
SE	0	3	1	0	1	1	1	4	0	1	6	5	0	8	6	1	7	6	3	7	5	0	2	6	0	2	2	1	6	2	0	0	2	2	1	2	94
SSE	0	0	0	0	0	2	0	1	4	4	2	3	2	0	3	0	1	1	0	3	3	0	2	1	0	4	4	3	2	3	0	0	2	0	1	1	52
S	0	0	0	2	0	0	2	0	0	0	0	0	0	0	3	0	0	2	3	0	3	1	3	2	1	0	3	2	1	3	0	1	0	0	0	0	32
SSW	0	0	1	0	0	0	0	2	1	0	0	0	1	0	1	0	3	4	2	2	3	1	0	1	2	4	2	1	0	1	0	1	2	0	2	0	37
SW	1	1	0	1	3	2	1	1	1	2	1	3	2	3	1	3	2	2	3	2	2	0	3	5	1	1	1	2	4	5	0	2	0	3	2	2	68
WSW	3	2	2	2	3	3	2	1	3	1	0	1	1	1	2	6	0	0	0	3	4	6	2	3	6	3	3	3	3	1	4	1	3	4	3	4	80
W	6	5	7	2	5	5	9	9	12	4	8	1	1	4	2	3	4	2	5	2	4	4	3	1	4	3	4	4	3	4	13	10	6	4	3	4	170
WNW	3	3	2	6	3	1	4	3	1	5	2	4	2	1	1	3	2	4	3	5	2	2	3	2	1	1	1	1	3	1	4	0	7	3	6	1	102
NW	2	5	5	4	3	5	4	4	2	3	3	6	6	4	3	1	0	1	4	1	2	2	0	2	7	3	2	5	1	1	2	5	3	3	1	5	110
NNW	3	2	1	1	2	1	3	2	2	1	1	0	2	0	1	2	1	0	1	0	0	0	0	0	0	0	1	2	0	2	1	1	1	1	1	1	37

Prevailing wind for the year 1873 was West

VII.

TABLE *showing the Comparison of Years.*

	1868.	1869.	1870.	1871.	1872.	1873.
Barometer :						
Highest—inches	30.752	30.625	30.572	30.610	30.500	30.596
" " date	Feb. 24—7 A.M.	Dec. 9—11 A.M.	Oct. 24—9 A.M.	Jan. 19—9 A.M.	Oct. 29—9 A.M.	Mar. 6—9 A.M.
Greatest mean monthly pressure	30.165	30.068	30.035	30.117	30.010	30.037
" " " " date	February.	December.	September.	January.	December.	December.
Lowest—inches	29.076	28.932	28.988	29.264	29.260	28.736
" " date	Dec. 7—9 P.M.	Feb. 4—7 A.M.	Jan. 2—4 P.M.	Feb. 18—2 P.M.	Mar. 31—4.20 P.M.	Nov. 18—5 A.M.
Least mean monthly pressure	29.958	29.723	29.812	29.797	29.836	29.821
" " " " date	December.	May.	February.	April.	May.	April.
Mean for the year	30.054	29.909	29.903	29 935	29.904	29.917
Thermometer :						
Highest—degrees	95.5	94.7	94.0	92.0	95.5	94.2
" " date	July 4—2.30 P.M.	Aug. 21—2 P.M.	June 28—4 P.M.	May 30—5 P.M.	July 2—3 P.M.	July 25—4 P.M.
Mean of the warmest month	76.0	72.8	76.0	73.6	77.4	75.4
" " " " date	July.	July.	July.	August.	July.	July.
Lowest—degree	1.4	4.0	9.5	—2.	3.0	—1.
" " date	Feb. 23—4.35 A.M.	March 1—4 A.M.	Feb. 22—4 A.M.	Dec. 21—8 A.M.	Mar. 5—9.30 A.M.	Jan. 30—7 A.M.
Mean for the year	48.9	51.4	53.5	51.1	51.0	50.9
Rain :						
Amount—inches	50.42	40.50	39.45	49.42	42.49	40.62
Snow :						
Amount (as water)—inches	8.05	6.23	2.87	2.61	4.88	7.37

JANUARY, 1873.

Date.	Barometer (Thermometer attached).						Thermometer (Shade in open air).						Wind.					Clouds.			Rain and Snow.			
	7 A.M.		2 P.M.		9 P.M.		7 A.M.		2 P.M.		9 P.M.		7 A.M.	2 P.M.	9 P.M.									
	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow. Inches.
1	30.266	21	30.274	29.2	30.290	29	21	19.7	29.2	26	29	21.2	NNE	NNE	NE	76	7	0	4	3				
2	30.290	20	30.252	24	30.162	28.2	20	18	24	20.5	28.2	26	NE	NE	E	118	2.7	10	10	10	10 P.M.	12 P.M.	09	
3	29.794	39.5	29.700	43.2	29.688	39	39.5	36	43.2	41	39	37.7	N	NNW	W	114	2.7	10	10	10	oh. om. A.M.	8 A.M.	74	
4	29.886	38.5	30.046	39.5	30.192	31.7	38.5	32	39.5	32	31.7	30.2	WNW	W	NE	204	4.2	0	8	10				
5	30.112	28.5	29.682	46.7	29.460	40	28.5	27	46.7	37.7	40	34	E	ENE	NE	194	13	9	10	10	10.40 A.M.	11 P.M.	1.37	
6	29.780	39	30.030	33.2	30.202	23.7	39	33	33.2	30.5	23.7	23	WNW	NW	NW	343	8.7	2	1	0				
7	30.258	17	30.262	32	30.264	37.7	17	17	32	28.2	37.7	32.2	NNW	NW	E	65	0.5	0	8	8				
8	30.116	21	29.954	31.7	29.828	33	21	18.7	31.7	28.5	33	29.5	NE	ENE	NNE	131	2.5	8	10	10	6 P.M.	12 P.M.	25	
9	29.748	32.7	29.778	31.2	29.940	28.5	32.7	28	31.2	27.2	28.5	28.2	W	W	W	200	8.2	0	0	0	oh. om. A.M.	2 A.M.	03	
10	30.020	22	29.994	23.2	30.024	16	22	22	23	20.7	16	15.7	WSW	W	WNW	157	4.2	0	0	0				
11	30.124	6.5	30.144	12	30.244	8.5	6.5	6.5	12	11	8.5	8.2	NW	W	WSW	250	9.2	3	0	0				
12	30.344	7.0	30.396	29	30.400	28	7	7	29	25	28	28	W	NNW	ESE	93	0.7	0	8	10				
13	30.312	27	30.154	46	30.046	42.2	27	26.5	46	41	42.2	37.2	NE	SE	WSW	78	0.2	9	9	8				
14	30.006	37.2	30.092	48.7	30.280	37.2	37.2	34.7	48.7	39.5	37.2	37	SW	WNW	NNE	121	3.2	8	7	0	1.50 A.M.	4 A.M.	04	
15	30.480	27	30.524	29.7	30.464	30.2	27	26.2	29.7	27.7	30.2	29.2	ENE	ENE	ENE	349	11.2	10	10	10				
16	30.202	35.7	30.028	49.2	29.874	49.5	35.7	33.5	49.2	44	49.5	44.7	ENE	SE	SE	180	3.5	10	10	10	oh. om. A.M.	5.30 A.M.	17	50
17	29.678	54	29.742	40	29.812	33	54	47.7	40	36	33	29.2	WSW	N	NNE	193	6.2	10	9	10	1 A.M.	8 A.M.	94	
18	29.732	30	29.680	31	29.666	30.5	30	29.7	31	29.5	30.5	29	ENE	NNE	WNW	262	8	10	10	10	{ 7 A.M. { 6 P.M.	2 P.M. 10 P.M.	46 01	
19	29.766	19.5	29.826	20.5	29.950	19.5	19.5	18.7	20.5	18.5	19.5	18.2	W	W	W	168	3.2	0	7	3				
20	29.990	24	29.896	30.5	29.852	38.5	24	24	30.5	28	38.5	33.2	W	WNW	SSW	89	1	6	9	10	4.30 P.M.	5 30 P.M.	01	06
21	29.736	30.5	29.556	43	29.490	36.2	30.5	26.5	43	38.2	36.2	33	ESE	SE	W	111	2	9	10	10	oh. 15 m. P.M.	9 30 P.M.	20	
22	29.032	37	29.796	37	29.972	31.5	37	32.5	37	31	31.5	30	W	NW	NW	291	13.5	9	7	2	oh. om. A.M.	1.20 A.M.	01	
23	30.108	35	30.054	30	29.940	24.2	35	31	30	28.5	24.5	23	NE	NE	ENE	176	11.5	0	10	10	4.30 P.M.	12 P.M.	37	3.50
24	29 594	28	29.454	28.2	29.584	24.7	28	26.5	28.2	27	24.7	24	ENE	NE	NW	409	21.5	10	10	10	oh. om. A.M.	6.30 P.M.	00	50
25	29.784	24.5	29.880	26	30.048	16	24.5	22.7	26	23	16	15.5	WSW	WNW	NW	256	7.7	4	7	5				
26	30.106	18	30.090	23.5	30.052	24.5	18	18	23.5	22	24.5	23.5	NNW	NW	ESE	72	0.5	7	6	10				
27	29.822	27.2	29.532	28.2	29.604	25.7	27.2	26	28.2	26.5	25.7	24.7	ENE	NE	NW	265	5.7	10	10	10	oh. om. A.M.	10.30 P.M.	59	6.00
28	29.938	23	29.888	27	29.902	24.7	23	22.7	27	26.5	24.7	24.2	WNW	SW	W	192	9	6	9	0				
29	30.110	0.0	30.134	7	30.116	15.7	0.0	0.0	7	6	15.7	12	NW	NW	NNW	261	10.7	0	3	0				
30	30.094	20	30.050	15.7	30.052	17	20	18	15.7	14	17	16	NNW	WSW	W	81	0.7	0	4	0				
31	29.996	16	30.046	28.5	30.058	25.7	16	15.5	28.5	25.5	25.7	25	W	WSW	W	159	1.5	0	1	0				

FEBRUARY, 1873.

Date.	Barometer (Thermometer attached).						Thermometer (Shade in open air).						Wind.					Clouds.			Rain and Snow.			
	7 A.M.		2 P.M.		9 P.M.		7 A.M.		2 P.M.		9 P.M.		7 A.M.	2 P.M.	9 P.M.									
	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow Inches
1	29.976	26	29.882	24	29.982	18.5	26	22.5	24	23.5	18.5	18.2	W	WNW	NW	86	7.2	0	0	0				
2	30.162	9.5	30.214	13	30.196	11	9.5	9.2	13	11.5	11	11	NW	W	W	273	5.7	0	0	0				
3	30.120	25.5	29.904	28	29.814	34.2	25.5	24	28	26.7	34.2	32.2	SW	SW	SW	157	3.5	9	10	10	1 P.M.	6.30 P.M.	.24	.22
4	29.676	41.5	29.570	46.7	29.672	46	41.5	39	46.7	42.5	46	41.5	S	SW	SW	168	4.7	10	8	0	7 P.M.	7.20 P.M.	.01	
5	29.990	37.2	30.080	35.5	30.188	38.2	37.2	31	35.5	34.2	38.2	24	NW	WNW	NW	242	4.5	9	7	5				
6	30.144	36.5	30.102	42.5	30.050	49	36.5	34.7	42.5	37	49	42	WSW	SW	SSE	124	2.5	8	8	5				
7	29.902	32	29.650	38	29.498	38.7	32	30	38	36	38.7	36.7	NE	NE	N	225	7.5	10	10	10	11.45 A.M.	9.15 P.M.	.37	
8	29.524	36.5	29.566	44	29.632	40	36.5	33.5	44	36.7	40	34	WSW	WSW	W	236	3.5	8	1	0				
9	29.628	28.2	29.736	20.5	29.950	11.7	28.2	25	20.5	19.5	11.7	10.5	NW	NW	NW	404	21	6	6	0				
10	30.108	10	30.112	20	30.122	22.2	10	10	20	17.7	22.2	21.5	NW	W	WSW	269	8.5	0	0	6				
11	29.838	30	29.716	37.7	29.756	42	30	29.5	37.7	33.2	42	36.5	E	WSW	WSW	100	2	10	9	10	7 A.M.	10 A.M.		slight
12	29.808	36	29.758	33.2	29.646	29.2	36	32	33.2	31.7	29.2	27.5	NE	E	ENE	190	5.5	10	10	10	7 A.M.	12 P.M.	.04	slight
13	29.836	16	29.960	21.7	30.100	22	16	15.5	21.7	20.5	22	20	NNE	N	N	276	5.7	3	8	2	oh. om. A.M.	3 A.M.	.27	5.75
14	30.206	12.7	30.272	27.2	30.340	35.5	12.7	12.5	27.2	24	35.5	32.2	NNE	ESE	ESE	79	0.7	4	2	8				
15	30.404	36	30.418	37	30.390	40.7	36	32.5	37	34	40.7	39	WNW	W	SSE	42	0.7	7	8	5				
16	30.174	29.2	29.804	34.5	29.508	37	29.2	27.5	34.5	33	37	34.5	E	NE	ENE	239	14.2	10	10	10	3.45 A.M.	11.15 P.M.	1.18	4.75
17	29.638	35.2	29.886	42	30.090	36.2	35.2	31.5	42	35.2	36.2	30.5	N	N	N	375	14	8	0	0				
18	30.230	28	30.252	42.7	30.198	42	28	26	42.7	35.2	42	37	N	SE	SE	160	6	6	8	10				
19	30.016	41	29.854	38.2	29.930	39	41	38.7	38.2	37	39	34.5	S	WSW	W	121	2.5	8	10	0	oh. 30m. P.M.	3 P.M.	.09	
20	30.058	31.7	30.044	36	29.986	38	31.7	26	36	32.5	38	31.5	WNW	NW	W	281	11	2	3	10				
21	29.588	32	29.064	33	29.360	31.7	32	31	33	31.5	31.7	30	ESE	NNE	WSW	229	20	10	10	2	9 A.M.	7.30 P.M.	1.28	2.25
22	29.532	14	29.538	24	29.598	20.5	14	13.5	24	21.7	20.5	18.5	WNW	W	NW	364	12	0	5	2				
23	29.514	12.5	29.474	17	29.564	13.2	12.5	11.5	17	16	13.2	8	WNW	WNW	NW	255	12	0	6	0				
24	29.602	—1	29.576	9.7	29.666	16.5	1	—1	9.7	6	16.5	16	WNW	W	W	400	15.2	5	5	2				
25	29.726	19	29.750	29.7	29.822	28.5	19	17.7	29.7	27.7	28.5	27.5	W	NW	WNW	255	10.7	6	1	0				
26	29.888	25.7	29.918	36.5	29.928	31	25.7	25.5	36.5	35.5	31	30.7	WNW	NNW	E	253	11	0	0	0				
27	29.740	29	29.568	31	29.646	29.5	29	28	31	30	29.5	28	E	ENE	N	186	7	10	10	10	4.50 A.M.	11.30 P.M.	.32	4.00
28	29.752	26.5	29.892	34	30.020	27.5	26.5	24.7	34	31.2	27.5	26	NNW	NNW	NNW	234	6.5	10	7	10				

MARCH, 1873.

Date	Barometer (Thermometer attached).						Thermometer (Shade in open air).						Wind.					Clouds.			Rain and Snow.			
	7 A.M.		2 P.M.		9 P.M.		7 A.M.		2 P.M.		9 P.M.		7 A.M.	2 P.M.	9 P.M.									
	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow. Inches
1	30.068	27	30.086	36.5	30.080	30	27	26	36.5	32.2	30	....	NNW	WNW	WNW	256	5.7	8	3	10				
2	30.040	23.5	29.934	44.7	29.808	36	23.5	....	44.7	35	36	28.2	WNW	SSW	SSE	44	0.2	3	8	10				
3	29.556	27	29.472	32.7	29.650	16	27	25.5	32.7	31.7	16	15.7	N	N	NNW	311	18	8	7	4	4.30 A.M.	7.30 A.M.	.01	.12
4	29.780	12.5	29.930	20	30.154	11.2	12.5	12	20	18.2	11.2	11	NNW	NNW	NNW	498	12	8	9	0				
5	30.356	10	30.432	25	30.496	26	10	10	25	24.7	26	25.7	NNW	NW	NW	179	3	0	0	0				
6	30.518	16	30.544	31.5	30.494	28.2	16	14.7	31.5	29.5	28.2	27	NW	WNW	W	120	1.5	0	0	0				
7	30.398	24.2	30.306	39.2	30.188	39.2	24.2	23.7	39.2	32	39.2	34	W	WSW	SSE	192	2.2	0	0	0				
8	29.888	42	29.702	43	29.726	44.2	42	34	43	38	44.2	37	S	SSW	W	149	2.2	0	8	2				
9	29.698	40.5	29.706	47.2	29.673	34.5	40.5	34	47.2	36	34.5	30	W	W	E	281	12	0	3	2				
10	29.566	20.2	29.832	37	30.046	40	26.2	25.7	37	34.5	40	34.2	NW	NNW	WSW	265	7.2	10	1	0	7.15 A.M.	9 A.M.	.02	.25
11	29.838	41	29.612	43.5	29.780	43.5	41	36.2	43.5	39.5	43.5	38	SE	SSE	W	217	10	10	9	6	9.30 A.M.	1.45 P.M.	.35	
12	29.808	36	29.834	39	29.900	34	36	32	39	29	34	32	WNW	WNW	W	142	4.7	3	5	2				
13	30.034	31.5	30.090	38.7	30.136	39.5	31.5	31	38.7	36.2	39.5	33.5	W	W	SSW	199	8.7	0	2	0				
14	30.172	35	30.270	44	30.302	41	35	30	44	33.2	41	36	W	W	WSW	233	5.7	0	0	4				
15	30.260	32.2	29.978	44	29.712	39	32.2	30	44	39.5	39	38.5	W	SE	ESE	119	6.2	9	3	8				
16	29.582	43.5	29.070	44	29.866	36.2	43.5	37	44	36.5	36.2	31.5	W	W	W	363	23.5	4	7	2				
17	30.032	30.5	30.086	39.7	30.134	35	30.5	30.2	39.7	33	35	33.5	W	NW	W	610	19	0	0	3				
18	30.108	33	29.882	43.7	29.646	49.7	33	31	43.7	41	49.7	45	WSW	SE	SSE	167	6.7	4	8	10	10.30 P.M.	11.30 P.M.	.02	
19	29.700	42.2	29.818	50	29.888	46.5	42.2	39.2	50	40	46.5	40	WSW	NW	NW	180	9	7	8	3				
20	29.784	37	29.564	35	29.240	36	37	34	35	33.7	36	33.2	NE	NE	ENE	339	20.5	10	10	10	11.30 A.M.	12 P.M.	.36	
21	29.328	30.2	29.390	34.5	29.478	34	30.2	28.5	34.5	31	34	32.5	W	W	SW	362	14.7	8	8	4	oh om. A.M.	2 A.M.	.02	
22	29.510	33	29.596	35.5	29.816	34	33	32.7	35.5	31.5	34	32.5	W	W	W	375	13.5	7	9	10				
23	29.880	33.5	29.726	50	29.692	49.5	33.5	32.7	50	44	49.5	42	SW	SW	W	176	6	7	8	7				
24	29.910	27	30.000	35.2	30.054	29.7	27	26	35.2	30	29.7	29.2	WNW	NNE	NE	253	8	7	7	10	9.15 P.M.	12 P.M.	.01	
25	29.978	26.5	29.960	26	29.904	28.7	26.5	26	26	24.7	28.7	27.5	NE	NNE	NE	277	8.5	10	9	10	oh. om. A.M.	12 P.M.	.10	
26	29.632	30.5	29.320	35	29.394	35.5	30.5	29.2	35	32.5	35.5	32	ENE	W	W	314	12	10	10	10	oh. om. A.M.	2.30 P.M.	.48	
27	29.716	23	29.942	33	30.174	30	23	22.7	33	31.2	30	28	WNW	W	W	410	18.2	8	7	4				
28	30.264	35	30.206	45	30.082	40.7	35	34	45	40	40.7	39	NW	SE	SSE	135	3.7	2	1	10				
29	29.676	44.5	29.084	49.5	29.906	40.7	44.5	42.7	49.5	48	40.7	37	ESE	SE	WSW	373	23	10	10	10	4.15 A.M.	5.15 P.M.	.06	
30	29.256	43	29.492	50.5	29.652	46.2	43	30.5	50.5	43	46.2	43	NW	NW	W	512	27.5	9	7	10				
31	29.456	48.7	29.546	48.7	29.812	43.2	48.7	47.2	48.7	46.7	43.2	42.7	S	W	W	242	20.2	10	8	0	{ 6.20 A.M. { 1.30 P.M.	7.30 A.M. 2 P.M.	.05 .01	

APRIL, 1873.

Date.	Barometer (Thermometer attached).						Thermometer (Shade in open air).						Wind.					Clouds.			Rain and Snow.			
	7 A.M.		2 P.M.		9 P.M.		7 A.M.		2 P.M.		9 P.M.		7 A.M.	2 P.M.	9 P.M.									
	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow. Inches.
1	29.992	38.7	30.032	56	29.970	46	38.7	38.5	56	50.2	46	42.2	W	SE	SE	138	3	2	0	10	10.30 P.M.	12 P.M.	.02	
2	29.740	51.7	29.670	55.5	29.762	50	51.7	48.2	55.5	51	50	46	SSE	ENE	WNW	110	5	10	7	2	oh om AM. 4 P.M.	3.40 A.M. 5.30 P.M.	.46 .03	
3	29.880	42.5	29.892	52.5	29.984	47	42.5	36.7	52.5	45	47	43.7	WSW	W	NW	185	6.2	2	9	3				
4	30.122	40.5	30.114	55	30.150	47	40.5	39.7	55	49	47	42	WNW	W	SE	65	0.7	8	7	5				
5	30.176	39.7	30.132	46.5	29.992	45.7	39.7	35	46.5	44.7	45.7	41.5	E	SE	SE	141	8	8	7	10	4.15 A.M. 8 P.M.	6 A.M. 10 P.M.	.02 .28	
6	30.112	45.5	30.036	49.7	29.998	40.5	45.5	39	49.7	43.2	40.5	37.7	SE	SE	E	98	1.7	10	9	10	7.15 P. M.	8 P.M.	.10	
7	30.000	39.2	29.926	48.5	29.904	50	39.2	36.5	48.5	44.7	50	45	N	ESE	SE	102	2	10	9	10				
8	29.802	50	29.754	52	29.844	57.5	50	46	52	48	57.5	50.2	SSE	SW	SSE	42	0.7	10	10	5				
9	29.902	49	29.934	42.2	29.810	39	49	45	42.2	38.5	39	38	E	ENE	ENE	282	7.7	9	9	10	8 P.M.	12 P.M.	.03	
10	29.978	46.7	30.072	56	30.162	55.7	46.7	41	56	46.5	55.7	48	NW	W	WSW	223	8.2	7	1	0	oh. om. A.M.	2 A.M.	.07	
11	30.172	47	30.122	57.2	29.978	49	47	42	57.2	53	49	47	SSE	SE	E	109	3.7	0	9	10				
12	29.650	40	29.436	36.7	29.576	36	40	39.2	36.7	34.7	36	34	NE	NNE	N	462	21	10	10	7	1.20 A.M.	9.30 P.M.	1.19	
13	29.644	40.5	29.710	50	29.790	43.2	40.5	36.5	50	42	43.2	38	NNW	NNW	NW	353	12	7	7	3				
14	29.756	39	29.680	48.5	29.742	44.7	39	34	48.5	41.5	44.7	41	WNW	NW	WNW	382	19.5	8	9	0				
15	29.752	43	29.884	52	30.056	46	43	42.5	52	49	46	43.5	WNW	NNE	NE	271	8	5	8	6				
16	30.112	41.7	30.154	49.7	30.124	44	41.7	37.2	49.7	44	44	38.5	ENE	SSE	SE	156	3.5	6	9	10	10.30 P.M.	12 P.M.	.03	
17	29.934	39.7	29.720	43	29.626	40.2	39.7	35.7	43	39.7	40.2	38.7	E	E	E	346	12	10	10	10	oh. om. A.M.	12 P.M.	1.59	
18	29.594	39	29.576	49.5	29.594	53	39	38.2	49.5	44	53	48	NW	W	SSE	164	5.5	9	9	10	oh. om. A.M.	5 A.M.	.01	
19	29.592	46.5	29.592	51.5	29.666	45.7	46.5	43	51.5	46.5	46.5	42.7	SSE	W	W	95	13.5	10	9	10	oh 30 m. PM.	7 P.M.	.08	
20	29.744	40	29.780	51	29.844	48	40	38	51	44	48	42.5	WNW	W	NW	185	3.7	0	5	5				
21	29.726	39.7	29.704	38.2	29.822	38.5	39.7	37	38.2	37	38.5	35.2	ENE	WNW	WNW	143	2	10	9	4				
22	29.864	39	29.782	37	29.784	37.5	39	33.5	37	33.5	37.5	34	W	NW	NE	109	1	10	10	10	10.30 A M.	12 P.M.	.07	
23	29.804	39.5	29.792	50.5	29.813	47.2	39.5	35	50.5	42.2	47.2	40.2	WNW	N	NW	85	1.7	9	9	0	oh. om. A.M.	3 A.M.	.05	
24	29.836	42	29.790	53.5	29.802	47.2	42	36.5	53.5	44.2	47.2	39.5	N	W	NW	83	6	0	7	6				
25	29.736	39.7	29.650	49.5	29.602	47.5	39.7	33.2	49.5	40.5	47.5	39.5	W	W	SW	178	2.2	5	9	7				
26	29.644	39.7	29.704	48	29.820	43.7	39.7	32	48	40.5	43.7	38.2	NW	WNW	WNW	328	11.2	6	9	3				
27	29.938	42	29.960	51	30.024	45.5	42	35.5	51	40	45.5	36.7	W	NW	NW	296	10.5	0	9	0				
28	30.082	51	30.010	60.7	29.956	56	51	40	60.7	43.5	56	43	SW	SE	SW	102	1.5	0	8	5				
29	29.936	47.7	29.934	60	29.972	58	47.7	44.2	60	48	58	47	SW	SE	SSE	139	1.2	10	8	10	10.50 P.M.	12 P.M.	.05	
30	30.058	48.2	30.130	61	30.174	55	48.2	44	61	51	55	47.5	ENE	SSE	SW	89	1	9	3	0	1.40 A.M.	6 A.M.	.08	

MAY, 1873.

Date.	Barometer (Thermometer attached). 7 A.M. Observed Height.	7 A.M. Ther-mometer.	2 P.M. Observed Height.	2 P.M. Ther-mometer.	9 P.M. Observed Height.	9 P.M. Ther-mometer.	Thermometer (Shade in open air). 7 A.M. Dry.	7 A.M. Wet.	2 P.M. Dry.	2 P.M. Wet.	9 P.M. Dry.	9 P.M. Wet.	Wind. 7 A.M. Direction.	2 P.M. Direction.	9 P.M. Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	Clouds. 7 A.M.	2 P.M.	9 P.M.	Rain and Snow. Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow. Inches.
1	30.194	48	30.170	66.2	30.089	59	48	45.2	66.2	52	59	47.5	W	SW	SW	155	2	0	8	10				
2	29.916	50	29.684	50.2	29.570	45.7	50	46.2	50.2	48.5	45.7	43.7	ESE	NNE	ENE	218	5.5	10	10	10	oh 30 m. AM	12 P.M.	1.28	
3	29.480	41	29.518	41.5	29.736	39.5	41	38.7	41.5	40.5	39.5	38.2	NE	ENE	N	292	5.7	10	9	10	oh om AM. 1 P M	1.30 A M. 8.15 P.M.	.27 .17	
4	29.900	41	29.978	61	30.020	60	41	38.7	61	45.5	60	49.5	NW	NW	SSE	152	2.7	0	1	0				
5	30.044	51	30.048	72.5	30.124	62	51	44.5	72.5	54	62	50.2	WSW	W	NW	238	6	0	3	4				
6	30.280	53.2	30.330	64	30.322	55	53.2	41.5	64	48.5	55	44.7	ENE	ESE	SE	172	3.5	0	0	0				
7	30.364	51	30.384	64	30.326	56	51	42.2	64	48	56	48	E	SE	SE	81	1.7	1	9	9				
8	30.320	48	30.300	50	30.170	45	48	43	50	43	45	42	E	ESE	E	221	5.7	9	10	10	1.30 P M	12 P.M.	.15	
9	29.952	44.5	29.910	48.7	29.948	46.5	44.5	43	48.7	47.2	46.5	45.2	ENE	ENE	ENE	557	23	10	9	10	oh. om. A.M.	1 P.M.	.80	
10	29.984	48.7	30.022	55	30.020	56.2	48.7	46.5	55	52	56.2	52	E	ESE	SE	135	2	10	10	10				
11	29.892	49.2	29.762	52	29.738	56	49.2	47	52	49.5	56	51.2	E	E	WNW	116	2	10	10	10	2 A M.	3.30 A M.	.18	
12	29.750	53	29.772	61.5	29.796	58.5	53	43.7	61.5	51	58.5	50	NW	NW	S	205	5.7	0	6	3	oh 30 m. PM.	12 P.M	.07	
13	29.644	58	29.514	77.2	29.706	52	58	50.5	77.2	62.7	52	42	SSW	W	NNW	212	26.5	7	6	3	2.50 P.M.	3 30 P.M.	.07	
14	29.786	44	29.758	56.5	29.704	51	44	36	56.5	45	51	42.2	NW	W	W	230	7	6	9	0				
15	29.738	47.5	29.772	66	29.790	60.5	47.5	40	66	52	60.5	50.2	NW	WSW	S	135	2.7	0	1	5				
16	29.806	51.5	29.850	63.5	29.874	58	51.5	43	63.5	52	58	50	NE	NE	W	78	1	9	9	8				
17	29.884	50	29.902	61	29.962	54	50	44	61	49.5	54	47.7	NW	NW	NW	209	12	0	8	2				
18	29.990	50	29.950	63	30.022	55.5	50	45.5	63	50	55.5	45	WNW	NW	NW	227	7.7	0	9	3				
19	30.010	53	29.996	69	30.066	60	53	41.7	69	51.5	60	46.5	NNW	W	WSW	88	1.2	0	3	0				
20	30.202	51.5	30.262	60.7	30.284	58	51.5	41	60.7	46	58	43.5	E	SE	SE	175	2.2	0	6	9				
21	30.270	56.5	30.294	56.5	30.216	47	56.7	46	56.5	48.2	47	45.7	SSE	SE	ESE	170	3.2	9		10	5 P.M.	12 P.M	.39	
22	30.138	52	30.120	65.5	30.092	61.2	52	50.2	65.5	61	61.2	58.2	E	SE	SE	146	1.2	10	9	10	oh om AM. 5 P.M.	10.10 A.M. 9 P.M.	.12 .13	
23	30.020	59.5	30.002	74	29.916	66	59.5	57.5	74	67	66	62	ESE	SE	SE	110	1.7	8	6	10				
24	29.796	62	29.730	78.2	29.784	71.5	62	60	78.2	69	71.5	65.2	SW	SW	N	141	3.2	10	5	7	4.[illegible] P. M.	4.50 P.M.	.04	
25	29.880	66.2	29.914	78.5	30.016	70	66.2	57	78.5	63	70	65.5	WNW	E	E	103	3.7	0	8	2				
26	30.128	65	30.144	77.5	30.100	64	65	55	77.5	64.2	64	58	E	SE	SSE	103	3	3	3	2				
27	30.064	61.5	30.008	68	29.914	64.2	61.5	57.7	68	60	64.2	60	SSE	SE	SSE	134	4	2	2	10				
28	29.880	68	29.844	83.5	29.886	78	68	64	83.5	70.5	78	67.2	SW	SW	WSW	160	5	9	8	3				
29	29.998	69	30.010	82	30.000	75.7	69	61.5	82	63.5	75.7	65	NW	WNW	S	115	1.7	3	8	5				
30	29.986	67	30.068	64.2	30.182	59.5	67	60	64.2	54	59.5	51.7	NNW	NE	ENE	161	3.5	4	9	3	3.45 P.M.	4.30 P.M.	.02	
31	30.362	55	30.420	66	30.380	62.2	55	44	66	49	62.2	48	NE	SE	SSW	184	8.2	0	0	0				

JUNE, 1873.

Date.	Barometer (Thermometer attached).						Thermometer (Shade in open air).						Wind.					Clouds.			Rain and Snow.			
	7 A.M.		2 P.M.		9 P.M.		7 A.M.		2 P.M.		9 P.M.		7 A.M.	2 P.M.	9 P.M.									
	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow. Inches.
1	30.334	56	30.238	77	30.156	67.7	56	48	77	59.7	67.7	56.2	WNW	W	W	197	5.2	0	0	0				
2	30.169	60.5	30.206	80.5	30.168	71	60.5	55	80.5	62	71	57	NW	N	SSW	114	1.7	0	2	0				
3	30.202	59	30.220	63.2	30.142	52.7	59	48	63.2	52.5	52.7	47	E	ESE	ESE	239	7.7	5	1	7				
4	29.998	58.7	29.804	67	29.668	72	58.7	54.5	67	59	72	63	SE	SW	SSW	92	3.5	10	9	9	4 A.M.	5 A.M.	.03	
5	29.588	69.5	29.652	83.7	29.714	73.7	69.5	58	83.7	70.2	73.7	66.5	W	NNW	WNW	125	2.2	5	6	2	0h. 0m. A.M.	2.20 A.M.	.01	
6	29.782	69.2	29.810	78.5	29.856	69	69.2	60	78.5	65.5	69	63	WNW	N	S	81	2	2	9	9	3 P.M.	6.30 P.M.	.71	
7	29.860	62.5	29.918	72	30.004	64	62.5	58	72	62.7	64	57.5	NNW	NNE	N	194	7.5	3	7	0				
8	30.110	61	30.150	69	30.210	62	61	51	69	56.5	62	52	N	E	SE	236	16	0	8	0				
9	30.160	59	30.096	75	30.024	67.5	59	49.5	75	62.2	67.5	59	W	N	SE	124	2	0	1	10				
10	29.980	64.2	29.970	83	29.940	76.7	64.2	56.5	83	63.7	76.7	65.5	SW	SSW	SSW	150	3.7	6	1	9				
11	29.912	72.7	29.946	78.5	30.016	73	72.7	65	78.5	68.7	73	62	WSW	W	N	218	3.2	9	9	8	11.20 P.M.	12 P.M.	.01	
12	30.058	65	30.106	74	30.166	67	65	56	74	59.5	67	54.5	NNW	NNE	NNE	157	4.7	4	3	0				
13	30.196	62	30.200	73	30.122	63	62	51.7	73	60	63	54	NE	SE	ESE	148	2.7	0	5	7				
14	29.986	56	29.938	68	29.932	65	56	52.7	68	59	65	60.2	NE	ENE	W	199	7.2	8	8	7				
15	29.924	67	29.920	71.5	29.904	67.5	67	60.7	71.5	62.5	67.5	61	WSW	SE	SSE	88	1.2	8	9	9				
16	29.902	68.2	29.876	84.2	29.840	79.2	68.2	63	84.2	73	79.2	68.5	SW	SSW	SW	173	2.7	3	4	2				
17	29.842	70.5	29.904	82	29.936	73.5	70.5	62	82	67	73.5	61	WNW	WNW	WNW	190	4.2	0	1	0				
18	29.970	65.5	29.940	76	29.862	69.5	65.5	53.5	76	60	69.5	58.7	NE	SE	SE	132	2.2	0	0	2				
19	29.800	69	29.806	90.2	29.760	83.7	69	60.2	90.2	74.5	83.7	71.5	WSW	W	SW	146	2.2	0	8	3				
20	29.688	79	29.742	89.2	29.808	77.2	79	69.5	89.2	69.2	77.2	61.2	WSW	W	WNW	248	10.2	0	0	0				
21	29.898	66	29.886	79	29.956	74.7	66	54.7	79	63	74.7	60	W	WNW	NW	222	13	0	5	8				
22	29.980	64	30.054	70.7	30.104	68.7	64	57.7	70.7	60.7	68.7	59	NE	SE	WNW	42	0.7	6	9	10				
23	30.164	62.2	30.212	66	30.202	61.7	62.2	57.2	66	59	61.7	56.5	ESE	ESE	E	131	1	9	9	10	3.10 A.M.	7 A.M.	.12	
24	30.118	60.5	30.134	61	30.184	60	60.5	58.5	61	58	60	56	ENE	NE	NE	157	4	10	9	3	5.30 A.M.	0h 30m PM	.13	
25	30.286	59.2	30.386	73	30.386	66	59.2	54.5	73	64	66	59	ENE	SE	SE	120	2	0	6	0				
26	30.388	64.5	30.384	77	30.278	70	64.5	56.5	77	63.7	70	62.5	E	SE	S	70	1.5	0	2	0				
27	30.188	64.5	30.084	81.5	29.980	75	64.5	60	81.5	68	75	64	SW	SW	SSW	191	4.5	4	4	2				
28	29.872	69.5	29.788	86	29.814	73	69.5	65	86.	69	73	69.2	WSW	SSW	E	207	3	7	7	9	5.30 P.M.	6.25 P.M.	.27	
29	29.820	72	29.854	84	29.870	76.2	72	67.5	84	72	76.2	68.2	WSW	SSE	SE	146	2.7	4	8	9				
30	29.878	70	29.882	78.7	29.876	73.2	70	67.5	78.7	73	73.2	68.5	ESE	SE	SE	227	9.7	10	7	10				

JULY, 1873.

DATE	BAROMETER (Thermometer attached).						THERMOMETER (Shade in open air).						WIND.					CLOUDS.			RAIN AND SNOW.			
	7 A.M.		2 P.M.		9 P.M.		7 A.M.		2 P.M.		9 P.M.		7 A.M.	2 P.M.	9 P.M.									
	Observed Height	Ther-mometer.	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow. Inches.
1	29.780	71	29.836	75	29.994	78.5	71	68	75	69.2	78.5	69.7	ESE	WNW	WSW	172	3	10	8	2	10 A.M.	oh 30 m PM	.17	
2	30.082	74	30.132	89.2	30.106	82.5	74	63.5	89.2	68.2	82.5	70.5	W	SE	SE	81	1.2	0	7	8				
3	30.082	78	30.040	91	30.018	83.5	78	68.5	91	71	83.5	72	SSW	SE	S	129	8.2	0	7	8	5 P.M.	5 40 P.M	.37	
4	29.980	81	29.970	85	29.922	77	81	72.2	86	72	77	70	S	WSW	NW	184	6	6	7	9	10.40 P.M	11.50 P.M.	.09	
5	29.850	78.7	29.856	74.5	29.836	74.2	78.7	72	74.5	70	74.2	67.7	SE	WSW	SSE	63	0.5	10	9	7	9.30 A.M	1.50 P.M.	.94	
6	29.862	69	29.922	78	29.938	69	69	60	78	64.5	69	58	WNW	WNW	NW	195	5	0	5	3				
7	30.038	62.5	30.018	77.5	30.016	72.5	62.5	53	77.5	61	72.5	59.5	NNE	E	SE	122	1	3	3	5				
8	29.988	67.2	29.980	76	29.984	68	67.2	59.5	76	66.5	68	60.5	W	SE	E	87	1.2	9	9	6				
9	29.986	69.2	30.000	78	30.038	73.5	69.2	61.2	78	65	73.5	63	NE	WNW	SW	53	0.5	3	7	5				
10	30.052	72	30.050	80.7	30.012	71	72	62.2	80.7	66.5	71	63.2	SW	SE	SE	124	2.7	7	1	7				
11	30.000	67.5	29.980	70	30.052	68	67.5	64	70	66	68	59	SE	SW	W	98	2.7	10	8	0	6 A.M. 1.15 P.M.	8.15 A.M. 1.40 P.M.	.17 .11	
12	30.180	63	30.242	75.2	30.208	72	63	54.2	75.2	58.2	72	59	NNW	N	S	97	1	2	8	3				
13	30.288	67	30.320	79	30.262	72.5	67	61.2	79	65	72.5	64	S	SSE	S	145	5.2	3	7	0				
14	30.200	69.2	30.110	89	30.020	79.2	69.2	62.5	84	76	79.2	71	SW	SSW	W	193	3	2	6	9				
15	29.966	74	29.972	87.7	29.956	80	74	67.5	87.7	75.2	80	69.2	WNW	WNW	WNW	172	4.7	4	7	2	1.30 A.M	2.30 A.M.	.02	
16	30.048	72	30.030	83	29.984	77.7	72	61	83	67.7	77.7	67.5	N	SSW	SSW	126	1.2	3	4	5				
17	29.938	69.7	29.890	73.5	29.784	69	69.7	63	73.5	67	69	65	ENE	E	E	168	2.7	7	8	10	oh 30 m PM 10.30 P.M	oh 50 m PM 12 P.M.	.03 .41	
18	29.802	68.5	29.890	66	29.938	62	68.5	65	66	64.5	62	60.5	ENE	ENE	E	215	4.7	9	9	10	oh om AM. 8 45 P.M.	2 A.M. 12 P.M.	.02 .24	
19	29.896	62.5	29.920	66.7	29.906	66	62.5	61	66.7	62.5	66	64	NE	ENE	SE	151	2	10	10	5	5 A.M.	8.15 A.M.	.01	
20	29.972	66.5	29.982	76.5	29.970	74	66.5	60.5	76.5	60.5	74	63	NW	WSW	WSW	128	2.5	1	5	6				
21	29.992	65.5	30.026	77.2	30.098	71	65.5	60	77.2	63	71	64	NW	WNW	W	117	2.5	6	7	0				
22	30.208	67.2	30.238	80.5	30.204	77	67.2	59	80.5	65.5	77	66.7	NW	SW	SSW	102	1.5	0	6	2				
23	30.210	69.5	30.182	84.5	30.100	80	69.5	61.5	84.5	68	80	62.5	W	W	WSW	143	2.5	2	4	0				
24	30.046	76	30.000	87.5	30.004	81	76	61	87.5	70	81	71	W	W	W	152	5	0	6	3				
25	30.020	77.5	30.002	87.5	29.938	82.5	77.5	68.7	87.5	73	82.5	72	SE	SE	SSW	119	4	0	0	0				
26	30.022	76.5	30.038	89.7	30.084	81	76.5	71	89.7	74	81	71	SW	SSE	WSW	252	7	0	6	9	9.30 P.M.	12 P.M	.07	
27	30.110	72	30.142	74.2	30.184	74.7	72	68.7	74.2	72	74.7	70	S	SE	SE	151	3.5	10	10	10	oh. om. A.M	7 P.M	1.38	
28	30.170	73.7	30.164	83.5	30.120	76	73.7	71	83.5	71.2	76	70	WNW	SSE	SSE	85	1.2	8	8	9				
29	30.048	75.7	30.006	81	30.007	75	75.7	70.5	81	74.2	75	72	SSW	SE	SW	111	2.5	9	8	10	10.40 A.M	11.15 P.M	.52	
30	30.038	77.7	30.070	85.2	30.076	78.7	77.7	70	85.2	73	78.7	70.2	W	NW	WNW	85	1.7	0	6	2				
31	30.130	73.7	30.150	83.7	30.118	78.7	73.7	66	83.7	68.5	78.7	70	NW	E	SSE	79	0.7	2	8	7				

AUGUST, 1873.

Date.	Barometer (Thermometer attached).						Thermometer (Shade in open air).						Wind.					Clouds			Rain and Snow.			
	7 A.M.		2 P.M.		9 P.M.		7 A.M.		2 P.M.		9 P.M.		7 A.M.	2 P.M.	9 P.M.									
	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amount of Water Inches.	Depth of Snow Inches
1	30.058	77	30.006	86.2	30.002	75.2	77	71	86.2	77.2	75.2	70.5	S	S	WSW	129	4	9	8	10	4.10 A.M. 9.30 P.M.	5 A.M. 9.40 P.M.	.01 .02	
2	29.988	75	29.954	85.5	29.948	79.7	75	70.5	85.5	77	79.7	73.5	W	S	SW	93	1.7	2	9	7				
3	29.922	78	29.904	89.2	29.966	73	78	73.2	89.2	78.2	73	68.2	WSW	SSE	NW	106	7.2	0	7	10	3.30 P.M.	5.30 P.M.	.19	
4	30.070	69.5	30.164	79	30.206	75	69.5	61.5	79	63.5	75	64.7	NW	NNE	NNE	98	2	5	8	3				
5	30.266	68.7	30.282	78.5	30.286	74	68.7	57.2	78.5	62.5	74	65	NNE	ESE	WNW	115	1.5	0	6	5				
6	30.222	64.7	30.264	79	30.200	75	64.7	61	79	65	75	67	WNW	WNW	SSE	59	2.2	2	2	4				
7	30.106	66.7	30.034	83.5	29.976	79	66.7	62	83.5	68.5	79	69.2	WSW	WSW	SW	227	2.7	2	5	9				
8	29.930	73.2	29.920	78.2	29.964	76	73.2	68	78.2	71.2	76	70	WSW	W	WSW	160	1.7	9	9	2	7.30 A.M.	9.30 A.M.	.29	
9	30.032	72	30.058	81	30.090	76.5	72	62.5	81	64	76.5	64.5	NNE	WSW	SSW	122	1.7	3	2	4				
10	30.152	66.2	30.166	79	30.176	73.5	66.2	57.5	79	62.5	73.5	65	NNE	E	SE	129	3.7	6	2	5				
11	30.172	68.5	30.186	79.5	30.174	73.5	68.5	62.7	79	65	73.5	63	ENE	SE	SE	125	3.2	0	1	4				
12	30.162	69.5	30.168	76	30.140	65	69.5	62	76	61.5	65	58.5	E	SE	E	201	6	6	6	9				
13	30.102	63.7	30.070	67.2	30.012	63.5	63.7	58.5	67.2	61.5	63.5	61	ENE	ENE	NE	400	14.5	10	10	10	4 A.M. 2 P.M.	5 A.M. 12 P.M.	.03 .34	
14	29.852	63.5	29.848	65.2	29.910	64	63.5	62.5	65.2	64	64	62	ENE	ENE	NE	470	15.2	10	10	10	oh. om. A.M.	1.30 P.M.	1.74	
15	29.930	62.5	29.932	69.2	29.920	70.2	62.5	61.5	69.2	65	70.2	66.2	NE	E	SE	115	1.2	10	10	10				
16	29.890	70	29.904	81.5	29.984	76.7	70	67.2	81.5	69.5	76.7	70	WSW	SW	SW	135	3	10	5	9	3 A.M. 10.40 P.M.	4.15 A.M. 12 P.M.	.15 .01	
17	30.136	64	30.172	73	30.210	70.2	64	60.2	73	61	70.2	62.7	NNE	ENE	SE	132	3.7	7	7	10	oh.40 m. A.M	3.40 A.M.	.05	
18	30.160	66.5	30.110	66	30.058	68	66.5	61	66	62.2	68	65.2	E	ENE	E	183	6.5	9	10	10	oh.om.A.M 8.30 A.M.	1.35 A.M. 12 P.M.	.01 .48	
19	30.042	67.2	30.072	75.5	30.088	74	67.2	64.5	75.5	70	74	70	NNE	NE	SE	46	0.2	10	9	10	oh. om. A.M.	9 A.M.	.09	
20	30.106	69	30.136	68.7	30.172	69.7	69	65.2	68.7	66.5	69.7	66.2	NE	ENE	ESE	96	2	10	10	10	6.30 A M	12 P.M.	.65	
21	30.166	67.7	30.144	71.5	30.158	70	67.7	65	71.5	68.2	70	68	ENE	ENE	ENE	146	1.5	10	10	10	oh.om, A.M 10 P.M.	1 P.M 10.30 P.M.	4.15 .01	
22	30.126	74	30.096	83	30.098	77	74	70.2	83	73.5	77	71.2	WSW	SW	SW	79	1.5	10	7	4	5.15 A.M. 4.30 P.M.	6 A.M 5.15 P.M	.03 Slight.	
23	30.074	73.5	30.052	85.5	30.068	73	73.5	69.2	85.5	72	73	63	W	WNW	NW	78	13	6	4	7				
24	30.084	55.5	30.056	67	30.038	60	55.5	50	67	54.2	60	54	NW	WNW	WNW	270	7	0	0	0				
25	30.024	58.7	29.944	72	29.908	68.5	58.7	54.5	72	60	68.5	61	W	W	W	102	1	9	9	0				
26	29.868	66.7	29.874	74.5	29.930	70	66.7	64	74.5	64	70	65.5	WNW	NNE	NNE	72	2.5	4	9	7				
27	30.036	62.5	30.124	71	30.174	68.5	62.5	61.7	71	63.5	68.5	64	ENE	E	S	88	1.5	5	6	3				
28	30.260	63.7	30.302	75.5	30.318	68.5	63.7	60.7	75.5	66	68.5	63	SSW	S	SW	41	0.2	6	9	6				
29	30.352	65.5	30.354	75	30.278	69	65.5	61.7	75	64.5	69	65	W	SSE	SE	71	1	8	7	10	11.30 P.M	12 P.M.	.04	
30	30.186	66.7	30.160	78	30.136	71	66.7	64.5	78	69.5	71	66.5	NNE	W	WSW	87	1.5	10	8	0	oh. om. A.M.	3 A.M.	.77	
31	30.050	69	29.968	84.2	29.960	75	69	67	84.2	73	75	71	WSW	SW	S	122	5.5	8	9	10	4.15 P.M.	5 P.M.	.50	

SEPTEMBER, 1873.

	Barometer (Thermometer attached).						Thermometer (Shade in open air).						Wind.					Clouds.			Rain and Snow.			
	7 A.M.		2 P.M.		9 P.M.		7 A.M.		2 P.M.		9 P.M.		7 A.M.	2 P.M.	9 P.M.									
Date.	Observed Height.	Thermometer.	Observed Height.	Thermometer.	Observed Height.	Thermometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow. Inches.
1	29.864	73	29.772	87.5	29.856	75.5	73	70.7	87.5	76	75.5	70.7	WSW	WSW	W	172	5.2	6	7	5	4.20 A.M.	5.15 A.M.	.01	
2	29.922	65	29.940	75.5	30.016	68	65	62	75.5	64	68	60.7	W	WNW	W	145	5.7	0	4	0				
3	30.106	63	30.136	75.5	30.088	71.5	63	55.5	75.5	60.2	71.5	64.5	NW	WSW	SSE	91	1.2	3	2	8				
4	29.944	73	29.864	83.5	29.850	79 5	73	70	83.5	75	79.5	74	S	SSW	SSW	169	4	10	7	8	2.10 A.M. 10 A.M.	5 A.M. 11 A.M.	.32 .21	
5	29.868	76	29.906	85.2	30.024	72	76	70.7	85.2	73	72	64.5	SW	WSW	NNW	229	3.5	2	9	7				
6	30.140	62	30.200	66	30.250	61	62	56	66	58.7	61	56.7	NW	NNE	W	108	3	1	8	4				
7	30.278	55.5	30.252	64	30.206	65	55.5	53.5	64	58.5	65	60	NNE	ENE	S	102	1.2	0	9	10	8 P.M.	12 P.M.	.24	
8	30.268	61.7	30.324	68.5	30.364	61.5	61.7	57	68.5	58.5	61.5	55	NW	N	NNE	128	2.7	8	9	6	oh. om. A.M.	4 A.M.	.09	
9	30.400	58.7	30.382	68.5	30.356	62.2	58.7	56	68.5	58	62.2	54.2	NE	ENE	SE	137	4	8	6	0				
10	30.306	57	30.250	63.7	30.206	64	57	51.2	63.7	58.7	64	60.5	NE	NE	E	123	3	3	9	10	9.30 P.M.	10.30 P.M.	.04	
11	30.180	60	30.126	69	30.106	66.2	60	58.5	69	60	66.2	61.5	NNE	ENE	SSE	101	1	10	4	0				
12	30.066	62.5	30.040	77	30.016	68.5	62.5	59.5	77	66.5	68.5	63.5	WSW	SSW	S	59	2	0	4	0				
13	29.902	61.7	29.838	75.5	29.856	65.5	61.7	60	75.5	67	65.5	62	WSW	SSE	NW	125	2	0	8	10	8.30 P.M.	10 P.M.	.12	
14	29.862	52.2	29.958	58	30.118	50.5	52.2	49.5	58	48	50.5	44.2	NW	NW	NW	187	4.7	10	9	0	oh. om. A.M.	9 A.M.	.20	
15	30.200	48.5	30.170	60	30.108	58.2	48.5	41	60	48	58.2	50	NW	W	SSW	80	2	3	1	4				
16	30.036	56	30.016	73	30.116	66.5	56	52	73	61	66.5	59	WSW	W	W	151	2.5	7	1	3				
17	30.228	54.5	30.236	65.5	30.232	60	54.5	46	65.5	51	60	53.2	NE	NE	SE	115	2.2	0	0	0				
18	30.192	59.5	30.152	74.7	30.088	69	59.5	56.5	74.7	64.2	69	64	E	SE	SSE	68	2	7	5	5				
19	29.898	69.5	29.740	68	29.684	67.2	69.5	67	68	64.7	67.2	64	SSW	SE	NNE	59	5	10	10	10	2.30 A.M.	10 P.M.	.86	
20	29.774	51.7	29.846	59.7	30.040	52.5	51.7	46.2	59.7	49.5	52.5	45	WNW	NW	WNW	272	11	7	2	3				
21	30.234	49.2	30.274	60.2	30.310	56 5	49.2	44.2	60.2	50	56.5	51	NW	W	WSW	66	0.7	0	1	4				
22	30.334	54.2	30.298	65.2	30.208	57	54.2	49	65.2	54.7	57	53	WSW	SSE	E	86	2.7	3	5	7				
23	30.100	59.5	30.036	68.5	29 994	63.7	59.5	57	68.5	61	63.7	60	W	SSE	ESE	86	2	9	9	10	6 A.M. 6.10 P.M.	7 A.M. 12 P.M.	.01 .06	
24	29.888	64.2	29.928	70	30.000	62.7	64.2	61.7	70	62	62.7	59	N	NNE	NNE	98	1.2	9	9	5	oh. om. A.M.	6 A.M.	.74	
25	30.080	61	30.072	68.5	30.058	66	61	57.7	68.5	61	66	60	E	SSE	SSE	131	2.5	8	9	10	11.30 P.M.	12 P.M.	.04	
26	30.164	64	30.206	75.2	30.230	67	64	62	75.2	61	67	62	W	NW	SW	74	1	7	0	0	oh. om. A.M.	oh 30 m AM	.02	
27	30.246	60.5	30.230	77.2	30.222	71	60.5	58.5	77.2	67.2	71	68.5	WSW	SSW	WSW	127	1.5	0	0	2				
28	30.186	65.5	30.156	78	30.076	70.7	65.5	62	78	69.5	70.7	66.5	W	SSW	S	156	1.7	9	0	0				
29	29.972	68	29.856	77 5	29.848	73	68	66.5	77.5	71.2	73	70	SSW	SW	WSW	223	4	9	9	10	7 P.M.	10 P.M.	.16	
30	29.960	57.5	30.030	59	30.066	53.5	57.5	53.5	59	49	53.5	47	NW	N	NNE	214	4.7	9	8	2	oh. 15 m. AM.	5.15 A.M.	.02	

OCTOBER, 1873.

Date.	Barometer (Thermometer attached).						Thermometer (Shade in open air).						Wind.					Clouds.			Rain and Snow.			
	7 A. M.		2 P.M.		9 P.M.		7 A.M.		2 P.M.		9 P.M.		7 A.M.	2 P.M.	9 P.M.									
	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches
1	30.110	46.5	30.134	63	30.140	59	46.5	44	63	51.7	59	50	NNW	W	SW	100	0.7	0	1	0				
2	30.212	54	30.220	65.5	30.236	62.2	54	47.7	65.5	52	62.2	54	NW	SE	SW	89	0.7	7	3	5				
3	30.238	52.5	30.214	69	30.220	64.7	52.5	50	69	54.7	64.7	57	W	WNW	S	35	0.5	3	5	4				
4	30.184	57	30.104	64.2	29.978	64	57	54	64.2	58.7	64	60.2	E	SSE	SSE	140	5.2	3	9	5	10 P.M.	12 P.M.	.13	
5	29.780	63.2	29.750	71.5	29.764	65.5	63.2	60	71.5	60.2	65.5	60	SW	WSW	SW	161	2.2	5	5	2				
6	29.674	63	29.530	67.5	29.586	50	63	60	67.5	65	50	48.5	SSE	SE	NNW	190	13.2	9	10	10	2.10 P.M.	12 P.M.	.89	
7	29.548	41	29.654	44	29.708	45	41	40	44	38.5	45	39.2	WNW	WNW	NNW	333	9	9	9	5	oh. om. A.M.	7 A.M.	.30	
8	29.754	46	29.838	63	29.954	57	46	39	63	50.7	57	49.5	NW	N	N	267	8.7	4	6	0				
9	30.100	51	30.150	63	30.174	52.5	51	46.2	63	54	52.5	47.5	N	NNE	NNE	244	9	0	0	0				
10	30.180	49.5	30.166	63	30.150	57.2	49.5	44	63	50	57.2	50	NNE	NNE	NNE	114	1.7	0	0	0				
11	30.056	49	29.960	68.5	29.864	59.5	49	43.2	68.5	50.5	59.5	50.5	NNE	NW	ESE	46	0.2	0	0	0				
12	29.792	54.2	29.764	61	29.890	49.5	54.2	48	61	52.7	49.5	42.5	W	W	W	113	4.5	9	9	7				
13	30.038	44	30.106	54	30.170	50.5	44	38	54	43.5	50.5	43	NW	WNW	SW	264	11.2	0	1	4				
14	30.178	47.5	30.198	68	30.338	58	47.5	43	68	53	58	50.7	SW	SW	WNW	170	1.7	1	0	0				
15	30.464	51	30.502	64.7	30.490	58.5	51	45	64.7	51	58.5	50.7	W	E	S	47	0.5	0	0	0				
16	30.426	49.5	30.282	68.5	30.208	61.2	49.5	47	68.5	58	61.2	55	SSE	SW	SW	111	2.5	0	1	4				
17	30.180	58.2	30.254	64	30.306	56.5	58.2	54	64	54	56.5	51	NW	N	SE	148	4	8	2	2				
18	30.244	53.5	30.160	61	30.116	62	53.5	50	61	56.2	62	57	E	SE	SSE	146	1.5	9	9	10				
19	30.040	63.5	29.944	70.2	29.780	63.7	63.5	60	70.2	64.7	63.7	62.7	SSE	SE	E	127	10.5	9	6	10	11 P.M.	12 P M	.09	
20	29.510	66	29.426	68.2	29.324	70	66	64.5	68.2	65	70	66	SE	SE	SE	444	15.7	10	10	10	oh.om. A.M 7 P.M.	7 A.M. 10 P.M.	.57 .04	
21	29.654	54	29.794	58.7	29.984	54.2	54	48	58.7	48	54.2	46	SSW	S	S	293	6	8	7	0	5 A.M.	6 A.M.	.01	
22	30.060	49.2	30.108	60.2	30.156	54.2	49.2	42.7	60.2	47.5	54.2	46.5	WSW	WSW	WSW	136	1.7	0	3	0				
23	30.202	50.5	30.206	65.2	30.214	58.5	50.5	45	65.2	53.5	58.5	52	WSW	SSE	SSW	87	1.5	0	4	0				
24	30.182	55.2	30.186	62.7	30.192	52.7	55.2	50.7	62.7	54	52.7	47.7	S	SW	NW	86	1	0	9	5				
25	30.244	43.5	30.218	54	30.230	45.5	43.5	38	54	44.5	45.5	43	NNW	NE	N	119	1.5	3	1	3				
26	30.192	44	30.086	59	29.928	57	44	41.5	59	47	57	50.2	N	SE	SSE	84	4	0	7	10	9.30 P.M.	12 P.M.	.03	
27	29.574	60	29.426	60	29.684	52	60	57.5	60	56	52	46.5	S	W	W	298	6.2	10	10	3	oh. om A.M.	3.30 P.M	.66	
28	29.782	47.5	29.700	57	29.792	43	47.5	42	57	46	43	38.7	W	SW	W	95	3.5	6	1	10	10 P.M.	10.30 P.M.	Slight.	
29	29.954	33	30.090	45	30.272	39	33	30	45	37	39	34.2	WSW	WSW	W	279	8	0	8	5				
30	30.360	35	30.334	45.2	30.282	44.2	35	33.2	45.2	40	44.2	38.2	NW	E	E	136	1.7	0	9	6	2.15 P.M.	3 P.M.	.01	
31	30.166	41	30.010	46	30.004	49	41	37	46	42.7	49	44.5	NE	NNE	NE	165	2.5	9	10	6				

NOVEMBER, 1873.

Date.	Barometer (Thermometer attached).						Thermometer (Shade in open air).						Wind.					Clouds.			Rain and Snow.			
	7 A.M.		2 P.M.		9 P.M.		7 A.M.		2 P.M.		9 P.M.		7 A.M.	2 P.M.	9 P.M.									
	Observed Height.	Thermometer.	Observed Height.	Thermometer.	Observed Height.	Thermometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amount of Water. Inches.	Depth of Snow. Inches
1	30.124	33.2	30.100	47	30.356	40	33.2	30	47	30	40	32	WSW	W	W	198	5.5	0	1	0				
2	30.374	37.5	30.264	55.5	30.122	50	37.5	33.2	55.5	43	50	43.2	WSW	SSW	SSW	161	4	0	7	9				
3	29.946	50	30.016	53	30.194	39	50	44.2	53	41	39	32	WSW	WNW	WNW	314	13	8	5	0				
4	30.208	38	30.108	49.5	30.060	49.7	38	33	49.5	39	49.7	42	W	SW	SSW	144	2.2	0	0	6				
5	30.034	46	30.096	52	30.184	37	46	41	52	42	37	32	W	WNW	NNE	158	3.7	8	0	8				
6	30.220	33	30.232	48	30.302	38.5	33	29	48	38	38.5	30.7	NNE	NW	NE	139	2.5	5	2	7				
7	30.278	34	30.168	50	29.942	47.5	34	28	50	42.7	47.5	44	NE	ESE	ENE	191	6.5	8	9	10	3.15 P.M	12 P.M.	.95	
8	29.572	45	29.568	51	29.688	48.7	45	43.5	51	48	48.7	41.5	NW	W	WNW	270	6.5	9	10	8	0h.0m. A.M 3.15 P.M.	5 A.M. 3.30 P.M.	.27 Slight	
9	29.712	42.5	29.684	51	29.804	41	42.5	40	51	44	41	35.5	W	W	NW	212	6.5	8	9	8				
10	29.900	32	29.800	34.5	29.954	29.5	32	28	34.5	34	29.5	20.5	NW	NW	WNW	347	10	8	4	2				
11	29.992	31	29.968	41	29.858	42.2	31	29.5	41	35.5	42.2	38	W	SW	SE	129	2	8	2	9	9.45 P.M.	12 P.M	.04	
12	29.538	42.5	29.506	40.7	29.456	40.5	42.5	40.5	40.7	38.5	40.5	39	W	WNW	WSW	148	3	10	9	10	0h.0m.A.M 2 P.M	5 A.M 4 P.M	.23 Slight.	
13	29.582	32	29.630	35	29.768	29	32	30.5	35	34.5	29	28.2	W	W	W	273	10	5	8	0				
14	29.882	23.7	29.958	29	30.058	20.5	23.7	22.5	29	28	26.5	20	W	WNW	W	220	5.5	0	7	2				
15	29.988	27.5	29.790	30.2	29.692	35.5	27.5	20.5	30.2	34	35.5	31	WSW	WSW	SSE	115	1	9	8	7	8 A.M.	8.30 A.M.		Slight snow.
16	29.454	36	29.360	44	29.446	44	36	34	44	39.5	44	37	NNE	NW	WNW	99	2	8	0	7				
17	29.408	35	29.256	37	29.060	35.2	35	31.7	37	34	35.2	32.7	ENE	NE	NNE	265	24	9	10	10	6.30 P.M	12 P.M	.30	
18	28.776	32.2	28.900	39	29.166	34	32.2	31	39	33.2	34	29	NNW	W	WSW	438	23.5	10	9	5	0h. 0m. A.M	9 A.M	.55	
19	29.412	33.2	29.444	34	29.582	29.5	33.2	30	34	32.2	29.5	28.5	W	WNW	WNW	152	4.2	9	9	3				
20	29.742	20.5	29.820	31	30.014	29	20.5	20	31	30	29	28	WNW	W	W	148	2.7	2	7	0	4 P.M	5 P.M		Slight snow
21	30.172	22	30.122	38	30.112	32.2	22	21.5	38	34	32.2	29	W	S	SSE	106	1.5	3	8	2				
22	30.190	31	30.236	41.5	30.344	35	31	30	41.5	33	35	29	W	W	WNW	74	2.5	3	0	0				
23	30.340	37	30.302	39	30.174	42	37	29	39	33	42	37	WNW	WNW	SE	24	0.5	10	9	10	7 P.M	12 P.M	.21	
24	29.656	47	[illegible]	45	29.318	42	47	44	45	43	42	39	E	NW	WSW	65	2	10	10	5	0h. 0m. A.M	3 P.M.	1.99	
25	[illegible]	34	[illegible]	40	[illegible]	30	34	32	40	34	30	27	WNW	W	WNW	217	13.5	9	8	3				
26	[illegible]	22	[illegible]	28	29.032	26	22	21	28	27	26	25	W	W	NW	401	15.5	0	1	6				
27	29.870	30	[illegible]	39	29.814	43	30	28	39	32	43	36	E	N	NNW	59	2.5	9	9	3				
28	29.904	32	30.092	31	30.260	27	32	28	31	30	27	27	WNW	NW	W	179	5	3	9	0				
29	30.350	27	30.400	33	30.416	30	27	27	33	32	30	30	W	W	W	107	4.2	0	1	0				
30	30.456	24	30.466	30	[illegible]	30	24	23	30	29	30	28	W	NNW	NW	88	2.2	8	8	9				

DECEMBER, 1873.

Date.	Barometer (Thermometer attached).						Thermometer (Shade in open air).						Wind.					Clouds.			Rain and Snow.			
	7 A.M.		2 P.M.		9 P.M.		7 A.M.		2 P.M.		9 P.M.		7 A.M.	2 P.M.	9 P.M.									
	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.	Velocity in miles for 24 hours ending at 9 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow. Inches.
1	30.544	24	30.518	21	30.528	19	24	21	21	21	19	19	NNE	NE	NE	184	3.5	10	10	10	11 A.M.	12 P.M.	.04	.50
2	30.508	24	30.432	34	30.386	36	24	22	34	32	36	35	NE	ENE	NNE	229	7.5	10	10	10	oh. om. A.M.	12 P.M.	.39	1.00
3	30.312	43	30.212	43	30.108	51	43	40	43	41	51	48	NW	WSW	SE	16	0.5	10	10	10				
4	29.882	53	29.770	66	29.984	52	53	52	66	59	52	40	SE	SSW	W	176	8	9	9	10	3 P.M.	3.30 P.M.	slight shower.	
5	30.218	39	30.274	37	30.302	33	39	31	37	30	33	28	W	WNW	NW	145	6.2	8	9	4				
6	30.390	29	30.386	36	30.470	30	29	28	36	34	30	29	N	NNE	NNE	89	1.5	8	8	3				
7	30.520	25	30.502	35	30.552	34	25	25	35	32	34	30	N	NNW	N	81	5	3	3	8				
8	30.582	37	30.486	38	30.360	40	37	35	38	34	40	38	E	NE	ENE	95	1.2	10	9	10	10 P.M.	12 P.M.	.04	
9	30.092	44	29.964	49	30.096	45	44	41	49	44	45	38	SW	WSW	NW	182	14.5	10	9	10	oh. om. A.M.	6.15 A.M.	.10	
10	30.190	41	30.216	41	30.226	36	41	36	41	34	36	31	NW	NW	WNW	285	14	9	4	4				
11	30.226	43	30.006	41	29.882	43	43	36	41	38	43	40	WSW	SSW	WSW	95	3	10	10	6	oh. 30 m. PM.	1.30 P.M.	.01	
12	29.726	49	29.660	60	29.680	48	49	46	60	52	48	46	SW	SW	NE	130	2.2	8	9	10	9.40 P.M.	10 P.M.	.02	
13	29.596	44	29.346	45	29.452	43	44	43	45	43	43	38	ENE	ENE	NW	117	15	10	10	10	4.15 A.M.	6 P.M.	.42	
14	29.820	27	29.924	36	29.974	34	27	25	36	31	34	33	WNW	WNW	WSW	362	15	0	6	4				
15	30.138	35	30.196	44	30.290	42	35	30	44	36	42	37	WSW	WNW	SW	113	3	6	0	2				
16	30.286	43	30.224	51	30.188	43	43	36	51	46	43	40	WSW	SSE	SE	35	1	5	8	10				
17	30.134	29	30.088	41	30.056	40	29	27	41	36	40	36	SE	SE	SSE	7	0	10	8	10				
18	29.960	32	29.936	49	29.990	46	32	30	49	41	46	39	NE	W	NW	32	1.5	10	0	2				
19	29.882	38	29.664	43	29.666	41	38	34	43	40	41	37	ENE	NNE	W	80	4	9	10	2	9 A.M.	3 P.M.	.50	
20	29.802	38	29.888	41	30.064	35	38	34	41	36	35	31	W	W	W	193	7	8	6	3				
21	30.234	24	30.278	31	30.326	25	24	23	31	28	25	23	WNW	WNW	NW	187	8.2	0	0	0				
22	30.368	22	30.384	31	30.380	28	22	21	31	26	28	27	WNW	ENE	NNE	40	1	3	0	0				
23	30.324	26	30.192	32	30.104	31	26	25	32	30	31	29	N	NE	N	147	5	9	9	9	3 P.M.	9 P.M.	.08	.75
24	30.074	26	30.056	40	30.088	33	26	25	40	33	33	32	NNW	N	NNW	187	8	0	6	8				
25	30.060	36	30.018	40	29.972	37	36	35	40	36	37	34	W	WNW	E	27	0.5	9	9	7				
26	29.734	34	29.472	35	29.418	36	34	31	35	31	36	32	NE	NNE	N	301	10	10	10	10	9 A.M.	12 P.M.	.39	1.
27	29.644	33	29.562	36	29.426	36	33	30	36	31	36	32	ENE	ENE	NNE	213	6.5	10	10	10	10 A.M.	12 P.M.	.42	4.
28	29.290	34	29.592	37	29.810	33	34	31	37	34	33	....	W	W	W	263	15	10	8	5	oh. om. A.M.	5.30 A.M.	.55	2.
29	29.786	29	29.654	38	29.734	34	29	28	38	30	34	31	SW	SW	SW	243	3.5	9	9	5				
30	29.832	24	29.978	21	30.136	20	24	21	21	20	20	20	NW	WNW	WSW	338	13.5	0	1	0				
31	30.250	23	30.278	31	30.278	27	23	21	31	30	27	26	WSW	WSW	WSW	225	4.5	0	8	0				

APPENDIX D.

REPORT

OF THE

DIRECTOR OF THE MENAGERIE,

For the Year ending May 31st, 1873,

AND A

SUPPLEMENTARY REPORT

FOR THE REMAINDER OF THE YEAR 1873.

DEPARTMENT OF PUBLIC PARKS,
OFFICE OF DESIGN AND SUPERINTENDENCE,
NEW YORK, 4th August, 1873.

To the Board of Commissioners of the Department of Public Parks:

GENTLEMEN,—I herewith present the Annual Report of the Director of the Menagerie.

Respectfully,

FRED. LAW OLMSTED,
Landscape Architect.

REPORT

OF THE

DIRECTOR OF THE CENTRAL PARK MENAGERIE,

For the Year ending May 31st, 1873.

FRED. LAW OLMSTED, Esq., *Landscape Architect, and General Superintendent Department Public Parks:*

SIR,—I herewith respectfully submit the following report of the animals exhibited in the Central Park Menagerie for the past year.

It will be seen that there is a noticeable increase over other years in the number of animals exhibited, as well as in the variety of species, the total number of specimens this year being 806, showing an increase of 205 over the previous year.

The permanent collection of the Department also shows a satisfactory increase, as appears from the following table:

	APRIL 1ST.		
	1871.	1872.	1873.
Quadrupeds	89	103	199
Birds	143	208	347
Reptiles	14	11	35

This increase is very gratifying, as it expresses the great interest manifested by the people in the success of the Menagerie, which has proved so important a means of instruction as well as of entertainment for the masses.

No death has occurred among the valuable animals of the permanent collection during the year. The most interesting events recorded are the following births:

Two Lions, *Felis leo.*

One Leopard, *Felis leopardus.*

Two Pumas, *Felis concolor.*

One Camel, *Camelus dromedarius.*

One Hyæna, *Hyæna crocuta*, which is believed to be the first Hyæna born in America.

Among the most valuable gifts may be mentioned the following:

One Sooty Monkey, *Cercocebus fuliginosus*, presented by General Bomford, U. S. A.

One Sambur Deer, *Rusa aristotelis*, presented by Consul Heyse, of Swindimundi, Prussia.

Two large-eared Brockets, *Coassus auritus*, one presented by Hon. Henry S. Sanford, the other by Mr. Thomas P. Ramsdell.

One Paisano, *Geococcyx californianus*, presented by Mr. Ben. Honnet, of Texas.

The Menagerie continues to be largely indebted to Mr. P. T. Barnum, Mr. George F. Bailey, Mr. Louis Ruhe, Messrs. Van Amburgh & Co., and Messrs. Charles Reiche & Bro., for the number and rarity of specimens placed by them on exhibition. Among these specimens, of greatest importance are the three Giraffes, *Giraffa camelopardalis;* two Sea Lions, *Eu-*

metopias stelleri; one Manatee, *Manatus americanus;* one Malayan Tapir, *Tapirus malayanus*, all exhibited by Mr. P. T. Barnum.

The Manatee is expressly worthy of note, inasmuch as it is the first of the species exhibited in New York, and the success in keeping it alive was hardly hoped for, owing to the difficulty in obtaining the proper food. The Tapir is the first of the species ever imported to this country.

Very respectfully,

WILLIAM A CONKLIN,
Director.

Mammalia.

Order: QUADRUMANA.

Family: *Cercopithecidæ.*

Genus: *Chlorocebus.*

C. sabæus (Linn.), Green Monkey. *Hab.* West Africa. *a, b.* Placed on exhibition February 12, 1873.

C. engythithea (Herm.), Grivet Monkey. *Hab.* Northeast Africa. *a.* Presented by Miss Fanny Elkins, January 25, 1872.

Genus: *Cercocebus.*

C. fuliginosus, Gèoffr., Sooty Mangabey. *Hab.* West Africa, *a.* Presented by General Bomford, Eighth infantry, U. S. A., May 4, 1872.

Genus: *Macacus.*

M. sinicus, Desm., Bonnet Macaque. *Hab.* India. *a.* Placed on exhibition October 16, 1871.

M. pileatus, Shaw, Toque Monkey. *Hab.* Ceylon. *a–c.* Presented October 12, 1871. *d.* Placed on exhibition November 20, 1872. *e–g.* Placed on exhibition November 29, 1872.

M. nemestrinus (Linn.), Pig-tailed Monkey. *Hab.* Java. *a, b.* Placed on exhibition November 29, 1872. *c.* Placed on exhibition February 12th, 1873.

M. cynomolgus (Linn.), Macaque Monkey. *Hab.* India. *a.* Placed on exhibition October 12, 1871. *b.* Purchased, 1871. *c.* Presented, 1871.

M. erythræus (Schreb.), Rhesus Monkey. *Hab.* India. *a.* Placed on exhibition 1870. *b.* Placed on exhibition December 28, 1872. *c–e.* Placed on exhibition November 29, 1872.

Genus: *Hamadryas.*

H. aegyptiaca (Linn.), Arabian Baboon. *Hab.* Arabia and Abyssinia. *a.* Placed on exhibition November 9, 1871.

Genus: *Cynocephalus.*

C. porcarius (Bodd.), Chacma Baboon. *Hab.* South Africa. *a–e.* Placed on exhibition May 5, 1873.

C. babouin, Desm., Yellow Baboon. *Hab.* West Africa. *a, b.* Placed on exhibition November 29, 1872

C. sphinx (Linn.), Guinea Baboon. *Hab.* West Africa. *a.* Purchased July 6, 1871. *b, c.* Placed on exhibition November 29, 1872.

Family: *Cebidæ.*

Genus: *Ateles.*

A. melanochir, Desm., Black-handed Spider Monkey. *Hab.* Central America. *a.* Placed on exhibition November 29, 1872.

A. belzebuth, Geoff., Marimonda Spider Monkey. *Hab.* Guiana. *a.* Placed on exhibition February 12, 1873.

Genus: *Cebus.*

C. apella (Linn.), Brown Capuchin. *Hab.* Brazil. *a.* Placed on exhibition October 12, 1871. *b.* Presented by Professor S. F. B. Morse, December 29, 1871. *c.* Placed on exhibition October 31, 1872. *d.* Placed on exhibition November 29, 1872. *e.* Placed on exhibition May 5, 1873.

C. capucinus, Geoff., Weeper Capuchin. *Hab.* Brazil. *a.* Placed on exhibition November 7, 1872. *b, c.* Placed on exhibition October 17, 1872. *d.* Placed on exhibition March 29, 1873.

C. hypoleucus (Humb.), White-throated Capuchin. *Hab.* Central America, *a.* Placed on exhibition March 7, 1873.

Genus: *Chrysothix.*

C. sciureus (Linn.), Tee-tee Monkey. *Hab.* Brazil. *a.* Placed on exhibition October 17, 1872.

Family: *Hapalidæ.*

Genus: *Jacchus.*

J. vulgaris (Linn.), Black-eared Marmoset. *Hab.* Brazil. *a.* Presented by Mr. Frederick Emmons, October 12, 1872. *b.* Presented by Mr. W. A. Conklin, November, 1872. *c.* Presented by Messrs. L. J. Phillips & Co., May 18, 1873.

Order: CARNIVORA.

Family: *Felidæ.*

Genus: *Felis.*

F. leo, Linn., Lion. *Hab.* Africa and South Western Asia. *a. b.* Purchased July 20, 1871. *c, d.* Placed on exhibition April 9, 1872. *e, f.* Placed on exhibition May 1, 1872. *g–i.* Placed on exhibition November 29, 1872. *j, k.* Born in the menagerie, January 25, 1873.

F. tigris, Linn., Tiger. *Hab.* India. *a.* Placed on exhibition

November 28, 1871. *b–d.* Placed on exhibition February 13, 1872. *e.* Placed on exhibition May 28, 1872.

F. leopardus, Linn., Leopard. *Hab.* Southern Asia and Africa. *a.* Presented by A. A. Silver, Esq., U. S. Commercial Agent, Africa, October 3, 1868. *b.* Purchased May 23, 1871. *c.* Born in the menagerie October 28, 1872. *d, e.* Placed on exhibition November 29, 1872. *f, g.* Placed on exhibition May 5, 1873. *h, i.* Placed on exhibition May 17, 1873. *j–m.* Placed on exhibition May 28, 1873.

F. leopardus, var. *melas,* Piron, Black Leopard. *Hab.* Southern Asia and Africa. *a.* Placed on exhibition May 30, 1873.

F. onca, Linn., Jaguar. *Hab.* South America. *a.* Placed on exhibition November 29, 1872. *b.* Placed on exhibition February 5, 1873.

F. concolor, Linn., Puma. *Hab.* North and South America. *a.* Presented by Brigadier-General N. B. McLaughlin, U. S. A., November 17, 1868. *b.* Presented by Philip Figyelmesy, Esq., U. S. Consul, Demerara, April 28, 1869. *c.* Purchased January 12, 1871. *d, e.* Born in the menagerie August 24, 1872. *f, g.* Placed on exhibition November 29, 1872.

F. pardalis, Linn., Ocelot. *Hab.* Texas and South America. *a.* Placed on exhibition February 12, 1873.

Genus : *Lynx.*

L. rufus, Raf. Wild Cat. *Hab.* North America. *a.* Presented by Mr. John Lynch, May 1, 1872. *b.* Presented by Professor F. S. Holmes, June 26, 1872.

Family : *Guepardidæ.*

Genus : *Gueparda.*

G. guttata (Schreb.), Cheetah. *Hab.* Africa and Asia. *a.* Purchased July 20, 1871.

Family : *Hyænidæ.*

Genus : *Hyæna.*

H. crocuta, Erxl., Spotted Hyæna. *Hab.* South Africa, *a.* Purchased May 23, 1871. *b.* Placed on exhibition April 9, 1872. *c.* Placed on exhibition May 28, 1872. *d.* Born in Menagerie, January 6, 1873.

H. striata, Zimm, Striped Hyæna. *Hab.* India. *a.* Placed on exhibition August 2, 1872.

Family : *Viverridæ.*

Genus : *Paradoxurus.*

P. musanga (Raffle), Musanga Paradoxure. *Hab.* Indian Archipelago. *a.* Presented by Mr. Charles J. Wirner, 1872. *b.* Presented by Capt. J. W. Downing, 1872. *c, d.* Presented by Mr. John Olsen, May 21, 1872.

Genus : *Suricata.*

S. zenik (Gm.), Suricate. *Hab.* South Africa. *a.* Presented by Mr. C. H. Lynch, October 9, 1872.

Family : *Canidæ.*

Genus : *Canis.*

C. latrans, Say., Prairie Wolf. *Hab.* Western United States. *a.* Born in the Menagerie, 1868. *b.* Presented by Mr. John Wolf, 1871. *c.* Presented by Mr. Ira Spaulding, Chief-Engineer Northern Pacific R. R., April 8th, 1872. *d.* Presented by Mr. Ben. Honnet, October 12, 1872.

C. occidentalis, var. *grisco-albus*, Rich., Grey Wolf. *Hab.* Western United States. *a, b.* Presented by Col. Floyd Jones, U. S. A., August 21, 1871.

C. occidentalis, var. *ater*, Rich., Black Wolf. *Hab.* Southern United States. *a.* Purchased July 10th, 1871.

Genus: *Vulpes.*

V. fulvus, Desm., Red Fox. *Hab.* North America. *a.* Presented by Mr. Sigourney W. Fay, 1871. *b.* Presented by Mr. R. W. St. Clair, January 11, 1872. *c, d.* Presented by Mr. J. A. Caldwell, August 25, 1872. *c, f.* Presented by Mr. W. C. Tracy, November 28, 1872. *g.* Presented by Mr. D. C. Dey, April 4, 1873.

V. virginianus, Rich., Gray Fox. *Hab.* United States. *a, b.* Purchased July 6, 1871. *c, d.* Presented by Mr. C. Muller, February 27, 1872.

V. vulgaris, Briss., Red and Gray Fox. *Hab.* Europe. *a.* Presented by Mr. F. Hollender, June 15, 1872.

Family: *Mustelidæ.*

Genus: *Mephitis.*

M. mephitica (Shaw), Common Skunk. *Hab.* United States. *a.* Presented by Mr. C. A. W. Ryerson, December 4, 1871.

Family: *Ursidæ.*

Genus: *Ursus.*

U. maritimus, Linn., Polar Bear. *Hab.* Polar regions. *a, b.* Placed on exhibition September 20, 1872. *c.* Placed on exhibition November 29, 1872.

U. horribilis, Ord., Grizzly Bear. *Hab.* Western United States. *a.* Presented by Mr. T. C. Durant, November 28, 1868.

U. americanus, Pall., Black Bear. *Hab.* United States. *a.* Presented by Mr. John J. Crooke, August 8, 1868. *b.* Presented by Col. E. H. Durfee, U. S. A., August 24, 1868. *c.* Placed on exhibition April 24, 1869. *d.* Presented by Hon. John T. Deweese, June 21, 1869. *e.* Presented by Lieut. C. A. Earnest, U. S. A., February 9, 1870. *f, g.* Presented by Mr. W. E. Morris, June 13, 1871. *h.* Placed on exhibition July 13, 1872. *i, j.* Presented by Mr. Paul McGowan, July 16, 1872. *k.* Presented by Miss Neilson, May 26, 1872.

U. americanus, var. *cinnamoneus*, Aud. and Bach., Cinnamon Bear. *Hab.* Western United States. *a.* Presented by Major General G. A. Custer, U. S. A., May 22, 1871.

U. arctos, Linn., Brown Bear. *Hab.* North Europe. *a, b.* Placed on exhibition October 31, 1871. *c.* Placed on exhibition October 30, 1873.

U. malayanus, Raffl., Sun Bear. *Hab.* India. *a.* Presented by Mr. Washington Irving, U. S. N., September 12, 1868. *b, c.* Placed on exhibition May 23, 1873.

Family: *Procyonidæ.*

Genus: *Nasua.*

N. rufa, Desm., Red Coatimundi. *Hab.* Tropical America. *a.* Placed on exhibition October 18, 1872. *b.* Placed on exhibition November 29, 1872.

N. narica (Linn.), Brown Coatimundi. *Hab.* South America. *a.* Presented by Mr. William Krohue, August 10, 1871. *b.* Purchased September 19, 1871. *c.* Presented July 20th, 1872. *d.* Placed on exhibition November 29, 1871.

Genus: *Procyon.*

P. lotor, Storr., Raccoon. *Hab.* United States. *a, b.* Presented by Wm. W. Strew, M.D., June 15, 1870. *c.* Presented by Mr. I. J. Peter, November 9, 1870. *d.* Presented by Mr. Rich'd H. Thurston, July 11, 1871. *e, f.* Presented by Mr. Thos. Concannon, July 19, 1871. *g.* Presented by Mrs. J. E. Ford, August 15, 1871. *h.* Presented by Mr. J. H. Eccles, August 22, 1871. *i.*

Presented by Messrs. G. & J. Woolbridge, May 24, 1871. *j.* Presented by Mr. Henry B. Hagan, September 6, 1871.

Family: *Otariidæ.*

Genus: *Eumetopias.*

E. stelleri, Peters. Sea Lion. *Hab.* Northern Pacific Ocean, *a–c.* Placed on exhibition April 12, 1872. *d, e.* Placed on exhibition April 15, 1873.

Family: *Phocidæ.*

P. vitulina, Linn., Common Seal. *Hab.* North Atlantic. *a.* Placed on exhibition June 29, 1872.

Order: RODENTIA.

Family: *Sciuridæ.*

Genus: *Sciurus.*

S. carolinensis, Gm., Gray Squirrel. *Hab.* United States. *a.* Presented by Mr. Steven McIntosh, September 14, 1870. *b.* Presented by Master Henry Burrows, 1871. *c.* Presented by Miss M. Augusta Andrews, May 24, 1871. *d.* Presented by Mr. C. Schwartz, July 6, 1871. *e.* Presented by Mr. W. A. Shaw, May 13, 1872. *f.* Presented by Miss Van Houten, May 16, 1872. *g.* Presented by Master Richard E. Purdy, September 5, 1872. *h, i.* Presented by Mr. H. S. Jaffary, December 11, 1872.

S. carolinensis, var. *nigra*, Bach, Black Squirrel. *Hab.* Southern United States. *a.* Presented by Mr. S. M. Andrews, July 6, 1871. *b.* Presented by A. Liautard, M. D., February 2, 1872. *c.* Presented by Mr. Willis Benner, February 21, 1872.

S. ludovicianus, Custis, Western Fox Squirrel. *Hab.* Western United States. *a.* Presented by Mr. John O'Shaughnessy, May 14, 1872. *b–d.* Presented by Dr. J. Simms, June 3, 1872.

S. cinereus, Linn., Fox Squirrel. *Hab.* Central United States. *a.* Presented 1870.

S. hudsonius, Pall, Red Squirrel. *Hab.* Northern U. S. and Canada. *a, b.* Presented by Master J. H. Clark, October, 1872.

Genus: *Pteromys.*

P. volucella, Pall, Flying Squirrel. *Hab.* United States. *a–c.* Presented by Richard E. Kunze, M. D., January 18, 1873.

Genus: *Cynomys.*

C. ludovicianus, Ord., Prairie Dog. *Hab.* Western United States. *a.* Presented by Mr. Rington J. Davis, April 23, 1872.

Genus: *Arctomys.*

A. monax, Gm., Woodchuck. *Hab.* United States. *a.* Presented by Mr. O. S. Boyden, June 3, 1871. *b.* Presented by Mr. Philip Holmes, August 18, 1871. *c.* Albino var. Presented by Master Henry A. Robinson, November 4, 1871. *d.* Presented by Patrick Fitzpatrick, October 30, 1872. *e.* Presented by Mr. Samuel H. Mead, Jr., May 12, 1873. *f.* Presented by Mr. Frank Gutberlet, May 22, 1873.

Family: *Castoridæ.*

Genus: *Castor.*

C. canadensis, Kuhl., American Beaver. *Hab.* Western United States. *a.* Purchased 1870. *b.* Presented April 28, 1872.

Family: *Muridæ.*

Genus: *Fiber.*

F. zibethicus (Linn.), Musk-rat. *Hab.* United States. *a.* Presented by Mr. Frank Carryl, January 23, 1873.

Family: *Hystricidæ.*

Genus: *Hystrix.*

H. cristata (Linn.), African Porcupine. *Hab.* North Africa. *a–c.* Placed on exhibition May 28, 1872.

Genus: *Erethizon.*

E. dorsatus, F. Cuv., White-haired Porcupine. *Hab.* Northern United States. *a, b.* Presented by Mr. Maurice M. Schultz, May 13, 1872.

Genus: *Dasyprocta.*

D. leporina, Linn., Agouchy. *Hab.* Guiana. *a.* Presented by Master W. N. Lawrence, May 10, 1871.

D. aguti (Linn.), Golden Agouti. *Hab.* South America. *a.* Presented by Messrs. Day & Evans, September 28, 1871. *b.* Presented by T. F. Gallaher, February 12, 1872. *c.* Placed on exhibition August 26, 1872. *d.* Presented by Mr. J. H. Kemp, April 3, 1873.

Genus: *Cavia.*

C. caprera, Linn., Guinea-pig. *Hab.* Brazil. *a.* Presented by Master Willie A. Pendleton, April 29, 1872.

Genus: *Hydrochoerus.*

H. capybara, Erxl., Capybara. *Hab.* South America. *a.* Placed on exhibition October 18, 1872.

Order: PROBOSCIDEA.

Family: *Elephantidæ.*

Genus: *Elephas.*

E. indicus, Linn., Indian Elephant. *Hab.* India. *a, b.* Placed on exhibition April 27, 1872. *c.* Placed on exhibition November 29, 1872. *d.* Placed on exhibition May 28, 1873.

E. africanus, Blum., African Elephant. *Hab.* Africa. *a.* Placed on exhibition January 23, 1873.

Order: UNGULATA.

Sub-order: Artiodactyla.

Family: *Camelidæ.*

Genus: *Camelus.*

C. dromedarius, Linn., Common Camel. *Hab.* Arabia. *a.* Purchased 1868. *b.* Purchased July 8, 1871. *c, d.* Placed on exhibition October 5, 1872. *e.* Born in the menagerie July 16, 1873.

C. bactrianus, Linn., Bactrian Camel. *Hab.* Central Asia. *a.* Placed on exhibition November 29, 1872.

Genus: *Auchenia.*

A. vicugna, Mol., Vicuna. *Hab.* Peru. *a.* Presented by H. Schuber, Esq., January 12, 1871.

A. huanaco, Tsch., Guanaco. *Hab.* Peru and Chili. *a.* Placed on exhibition July 20, 1872.

A. glama (Linn.), Llama. *Hab.* South America. *a.* Purchased July 6, 1871. *b.* Placed on exhibition July 3, 1873.

Family: *Giraffidæ.*

Genus; *Giraffa.*

G. camelopardalis (Linn.), Giraffe. *Hab.* Africa. *a–c.* Placed on exhibition September 18, 1872.

Family: *Bovidæ.*

Genus: *Bos.*

B. taurus, Linn., Domestic Cattle. *Hab.* Europe. *a.* Kerry var. Placed on exhibition 1868. *b-d.* Flores var. Born in the menagerie.

B. indicus, Linn., Zebu. *Hab.* India. *a.* Presented by Captain William Brown, Royal Navy Reserve, April 23, 1869. *b.* Placed on exhibition October 25, 1871. *c.* Placed on exhibition May 15, 1872. *d, e.* Placed on exhibition November 14, 1872.

Genus: *Bubalus.*

B. caffer (Sparm.), Cape Buffalo. *Hab.* South Africa. *a.* Presented by Brigadier-General Meigs, U. S. A., April 10, 1865. *b.* Born in the menagerie March 5, 1868. *c.* Born in the menagerie April 24, 1872.

Genus: *Bison.*

B. americanus (Gm.,) American Bison. *Hab.* Western United States. *a.* Presented by officers 7th U. S. Cavalry, May 1, 1868. *b.* Presented by Columbus Smith, Esq., January 25, 1871. *c.* Presented by Colonel Floyd Jones, U. S. A., June 8, 1871. *d.* Born in the menagerie November 22, 1871.

Genus: *Oreas.*

O. canna (Pall.), Eland. *Hab.* South Africa. *a.* Placed on exhibition July 2, 1872.

Genus: *Gazella.*

G. dorcas (Linn.), Dorcas Gazelle. *Hab.* North Africa. *a.* Placed on exhibition May 8, 1872.

Genus: *Portax.*

P. picta (Pall.), Nylghau. *Hab.* India. *a.* Placed on exhibition May 8th, 1872.

Genus: *Capra.*

C. hircus, Linn., Syrian Goat. *Hab.* North Africa. *a, b.* Placed on exhibition May 9, 1873.

Genus: *Ovis.*

O. aries, Linn., Sheep, Syrian var. Fat-tailed. *a.* Presented by Messrs. Nichols & Hoadley. *b–d.* Purchased July 5, 1871. *e–g.* Born in the menagerie. Black African var. *a–c.* Presented by Mr. Louis Ruhe, February 19, 1872.

O. tragelaphus, Desm., Aoudad. *Hab.* North Africa. *a.* Placed on exhibition May 30, 1873.

Family: *Cervidæ.*

Genus: *Dama.*

D. vulgaris, Gray, Fallow Deer. *Hab.* Europe. *a.* Presented by Mr. A. H. Barney, May 14, 1870.

Genus: *Cervus.*

C. canadensis, Erxl., American Elk. *Hab.* Western United States. *a.* Presented by Charles M. Elleard, December 18, 1864. *b, c.* Born in the menagerie. *d, e.* Placed on exhibition July 29, 1872. *f.* Purchased August 21, 1872. *g, h.* Placed on exhibition March 17, 1873.

Genus: *Rusa.*

R. aristotelis, Cuv., Sambur Deer. *Hab.* India. *a.* Presented by Consul Heyse, December 6, 1871.

Genus: *Axis.*

A. maculata, Gray, Axis Deer. *Hab.* India. *a.* Presented by Captain Napoleon Collins, U. S. N., November 25, 1867. *b.* Purchased July 6, 1871.

Genus: *Cariacus.*

C. virginianus, Bodd., American Deer. *Hab.* United States. *a.* Presented by Mr. G. T. D. Lanier, November 30th, 1867. *b.* Presented by Mrs. James F. Wenman, March, 9, 1868. *c.*

Presented by Mr. Turner, July 12, 1869. *d.* Presented by Mr. Paul S. Thebaud, September 14, 1869. *e.* Presented by Mr. William J. Pease, January 9, 1868. *f.* Presented by Captain Blake, November 9, 1869. *g.* Presented by Messrs. J. M. Sublett & Co., April 9, 1870. *h, i.* Presented by Hon. August Belmont, May 4, 1870. *j.* Presented by Mr. William Roy, January 31, 1871. *k.* Placed for exhibition May 25, 1871. *l.* Purchased July 7, 1871. *m.* Presented by Judge O'Sullivan, September 14, 1871. *n.* Placed on exhibition January 27, 1872. *o.* Presented by Mr. Ira Spaulding, April 8, 1872. *p.* Presented by William Radde, Esq., July 25, 1872. *q.* Placed on exhibition August 1st, 1872. *r.* Presented by Tilden Brown, M. D., May 31, 1873. *s–ee.* Born in the menagerie.

Genus: *Coassus.*

C. auritus, Gray, Large-eared Brocket. *Hab.* Brazil. *a.* Presented by Mr. Thomas P. Ramsdell, August 12, 1872. *b.* Presented by Hon. Henry S. Sanford, December 5, 1872.

Genus: *Capreolus.*

C. caprea, Gray, Roebuck. *Hab.* Europe. *a, b.* Placed on exhibition February 19, 1872. *c, d.* Placed on exhibition May 16, 1872. *e, f.* Placed on exhibition February 6, 1873.

Family: *Suidæ.*

Genus: *Sus.*

S. scrofa, Linn., Wild Swine. *a.* Japanese var. Presented by W. A. Conklin, 1867. *b, c.* African var. Placed on exhibition May 20, 1872.

Sub-Order: PERISSODACTYLA.

Family: *Equidæ.*

Genus: *Equus.*

E. caballus, Linn., Pony. *a.* Shetland var. Placed on exhibition, April 4, 1873. *b.* East Indian var. Placed on exhibition January 8, 1872.

E. burchellii, Gray, Burchell's Zebra. *Hab.* South Africa. *a, b.* Placed on exhibition, June 7, 1871.

Family: *Tapiridæ.*

Genus: *Tapirus.*

T. americanus (Linn.), American Tapir. *Hab.* South America. *a.* Placed on exhibition June 24, 1872. *b.* Placed on exhibition August 10, 1872. *c.* Placed on exhibition October 18, 1872. *d, e.* Placed on exhibition February 4, 1873.

T. malayanus, Horsf., Malayan Tapir. *Hab.* Malay Islands. *a.* Placed on exhibition May 30, 1873.

Order: SIRENIA.

Family: *Trichecludæ.*

Genus: *Manatus.*

M. americanus, Cuv., Manatee. *Hab.* Eastern coast of America. *a.* Placed on exhibition May 28, 1873.

Order: EDENTATA.

Family: *Bradypoidæ.*

Genus: *Cholopus.*

C. didactylus (Linn.), Two-toed Sloth. *Hab.* Brazil. *a.* Presented June 5, 1872.

Order: MARSUPIALIA.

Family: *Didelphyidæ.*

Genus: *Didelphys.*

D. virginiana, Shaw, Opossum. *Hab.* Southern United States. *a.* Presented by Master Charles Willenauer, May 25, 1872. *b.* Presented by Mr. R. W. Levering, June 4, 1872. *c.* Presented by John H. Wilson, M. D., December 19, 1872. *d.* Presented by Mr. John A. Greiley, December 20, 1872. *e.* Presented by Mr. C. T. Foster, January 26, 1873. *f.* Presented by Mr. William Brown, March 10, 1873. *g.* Presented by Mr. George E. Sherman, April 2, 1873. *h.* Presented by Mr. J. S. Blanck, May 7, 1873. *i.* Presented by Mr. Thomas W. Cross, May 18, 1873. *j.* Presented by Mr. George Ferguson, May 21, 1873.

Family: *Dasyuridæ.*

Genus: *Dasyurus.*

D. maugaei, Geoffr., Mauge's Dasyure. *Hab.* Australia. *a.* Presented by Rev. Dan. Greatorex, October 22, 1872.

Family: *Macropodidæ.*

Genus: *Macropus.*

M. giganteus, Shaw, Great Kangaroo. *Hab.* New South Wales. *a.* Placed on exhibition October 17, 1871.

Genus: *Halmaturus.*

H. derbianus, Gray, Derbian Wallaby. *Hab.* Australia. *a.* Purchased April 29, 1871.

Aves.

Order: PASSERES.

Family: *Turdidæ.*

Genus: *Turdus.*

T. musicus, Linn., Song Thrush. *Hab.* Europe. *a.* Presented by Mr. Robert Kemp, June 26, 1871. *b.* Presented by Mr. William J. Hiscox, March 18, 1873.

T. iliacus, Linn., Red-wing Thrush. *Hab.* Europe. *a.* Purchased October 28, 1871.

T. merula, Linn., Black Bird. *Hab.* Europe. *a.* Purchased April 28, 1871. *b–d.* Purchased May 23, 1871.

T. migratorius, Linn., American Robin. *Hab.* United States. *a.* Presented by Mr. John Fagin, November 13, 1867. *b.* Presented by Mr. John Leicht, August 15, 1872. *c.* Presented by Mr. Hugh Smith, November 1, 1872. *d.* Presented by Mr. Charles J. Drew, May 21, 1873.

Genus: *Erithacus.*

E. rubecula (Lath.), English Robin. *Hab.* British Islands. *a–l.* Presented by Henry Reiche, May 10, 1872.

Let loose in the Park.

Genus: *Harporhynchus.*

H. rufus (Linn.), Brown Thrush. *Hab.* Eastern United States. *a.* Presented May, 1871. *b.* Presented July, 1872.

Genus: *Mimus.*

M. polyglottus (Linn.), Mocking Bird. *Hab.* Southern United States. *a.* Purchased August 1, 1871. *b.* Placed on exhibition April 16, 1872. *c.* Presented by Mrs. Richard M. Gage, May 20, 1872.

Family: *Saxicolidæ.*

Genus: *Salia.*

S. sialis (Linn.), Blue Bird. *Hab.* North America. *a, b.* Purchased May 23, 1871. *c.* Presented April, 29, 1873.

Family: *Ploceidæ.*

Genus: *Estrelda.*

E. amadava (Linn.), Amaduvade Finch. *Hab.* India. *a, b.* Presented 1872.

E. cinerea (Vieill.), Common Waxbill. *Hab.* West Africa. *a, b.* Presented 1872.

Genus : *Amadina.*

A. fasciata (Gm.), Cut-throat Finch. *Hab.* West Africa. *a, b.* Presented 1872.

Genus : *Donacola.*

D. castanoethorax, Gould, Chestnut-breasted Finch. *Hab.* Queensland. *a, b.* Presented by Mr. Henry Erben, June 14, 1872.

Genus : *Padda.*

P. oryzivora (Linn.), Java Sparrow. *Hab.* Java. *a–j.* Purchased May 23, 1871. *k, l.* Presented by Mr. Henry Erben, June 14, 1872.

Family : *Fringillidæ.*

Genus : *Cynaospiza.*

C. cyanea (Linn.), Indigo Bird. *Hab.* United States. *a.* Purchased April, 1871.

C. ciris (Linn.), Nonpareil. *Hab.* Southern United States. *a–c.* Purchased June 6, 1871.

Genus : *Paroaria.*

P. larvata (Bodd.), Red-headed Cardinal. *Hab.* Brazil. *a–e.* Purchased April, 1871.

Genus : *Cardinalis.*

C. virginianus (Briss.), Cardinal Bird. *Hab.* Southern United States. *a, b.* Purchased June 6, 1871. *c.* Placed on exhibition August 14, 1871. *d.* Presented by Miss Nannie Roburg, September 5, 1872.

Genus : *Passer.*

P. domesticus Linn., European Sparrow. *Hab.* Europe. *a, b.* Bred in the menagerie.

Genus: *Ligurinus.*

L. chloris (Linn.), Greenfinch. *Hab.* Europe. *a, b.* Presented by Master George Schrader, May 25, 1872.

Genus: *Serinus.*

S. canarius (Linn.), Canary. *Hab.* Canary Islands. *a–h.* Purchased August 9, 1872. *i, j.* Bred in the menagerie.

Family: *Icteridæ.*

Genus: *Icterus.*

I. vulgaris (Daud.), Troupial. *Hab.* South America. *a.* Purchased January 17, 1871.

Genus: *Lampropsar.*

L. tanagrinus (Sphix.), Crow Black Bird. *Hab.* Bahia. *a.* Purchased 1872.

Genus: *Quiscalus.*

Q. versicolor Vieill., Purple Grackle. *Hab.* Eastern United States. *a.* Purchased May 21, 1871.

Family: *Sturnidæ.*

Genus: *Acridotheres.*

A. tristis (Linn.), Common Mynah. *Hab.* India. *a.* Presented 1870.

Genus: *Gracula.*

G. intermedia Hay, Larger Hill Mynah. *Hab.* Northern India. *a.* Purchased April, 1871.

Family: *Corvidæ.*

Genus: *Corvus.*

C. americanus, Aud., Common Crow. *Hab.* North America. *a.* Presented by Mr. George Young, Jr., July 9, 1872. *b.* Presented by Master John Leicht, August 13, 1872. *c.* Presented by Mr. W.

E. Rogers, October 28, 1872. *d, e.* Presented by Richard E. Kunze, M.D., April 12, 1873.

Order : ZYGODACTYLI.

Family : *Cuculidæ.*

Genus : *Geococcyx.*

G. californianus, Less., Paisano. *Hab.* Texas and New Mexico. *a.* Presented by Mr. Ben. Honnet, October 12, 1872.

Family : *Psittacidæ.*

Genus : *Calopsitta.*

C. novæ-hollandiæ (Gm.), Crested Ground Parrakeet. *Hab.* Australia. *a–c.* Purchased July 6, 1871.

Genus : *Cacatua.*

C. moluccensis (Gm.), Rose-crested Cockatoo. *Hab.* Moluccas. *a.* Purchased May 23, 1871. *b, c.* Placed on exhibition November 29, 1872.

C. cristata, Wagler, White-crested Cockatoo. *Hab.* Moluccas. *a.* Purchased July 6, 1871.

C. galerita (Lath.), Greater Sulphur-crested Cockatoo. *Hab.* Australia. *a–j.* Purchased August 9, 1872. *k.* Placed on exhibition November 29, 1872.

C. sulphurea (Gm.), Lesser Sulphur-crested Cockatoo. *Hab.* Moluccas. *a.* Purchased August 7, 1872.

C. leadbeateri (Vig.), Leadbeater's Cockatoo. *Hab.* Australia. *a, b.* Placed on exhibition November 29, 1872.

C. roseicapilla, Vieill., Roseate Cockatoo. *Hab.* Australia. *a.* Purchased May 23, 1871. *b–e.* Purchased August 9, 1872.

Genus : *Licmetis.*

L. tenuirostris (Wagl.), Slender-billed Cockatoo. *Hab.* South Australia. *a–c.* Purchased August 9, 1872. *d–i.* Placed on exhibition February 5, 1873.

Genus : *Ara*.

A. chloroptera, Gray, Red and Yellow Macaw. *Hab.* South America. *a.* Placed on exhibition 1870. *b.* Presented by Mr. W. De Peyster, August 24, 1870. *c.* Presented July 10, 1871. *d.* Placed on exhibition December 9, 1872. *e.* Placed on exhibition February 12, 1873.

A. ararauna (Linn.), Blue and Yellow Macaw. *Hab.* South America. *a–c.* Placed on exhibition October 18, 1872. *d.* Placed on exhibition November 29, 1872. *e.* Placed on exhibition February 12, 1873.

Genus : *Conurus*.

C. carolinensis (Linn.), Carolina Conure. *Hab.* Southern United States. *a–e.* Purchased August 7, 1872.

C. xantholæmus, Scl., St. Thomas Conure. *Hab.* West Indies. *a, b.* Presented September 8, 1871.

Genus : *Palæornis*.

P. torquata (Bodd.), Ring-necked Parrakeet. *Hab.* India. *a, b.* Purchased April 29, 1871. *c, d.* Purchased July 6, 1871.

Genus : *Platycercus*.

P. pennantii (Lath.), Pennant's Parrakeet. *Hab.* New South Wales. *a.* Purchased May 23, 1871.

P. eximius (Shaw), Rose-hill Parrakeet. *Hab.* New South Wales. *a.* Purchased January 17, 1871.

Genus: *Psephotus*.

P. multicolor (Brown), Many-colored Parrakeet. *Hab.* Australia. *a.* Purchased April 28, 1871.

Genus : *Aprosmictus*.

A. scapulatus (Kuhl.), King Parrakeet. *Hab.* New South Wales. *a, b.* Purchased August 7, 1872.

Genus: *Polytelis*

P. barrabandi (Swains.), Barraband's Parrakeet. *Hab.* New South Wales. *a.* Purchased August 7, 1872.

Genus: *Electus.*

E. grandis (Gm.), Grand Electus. *Hab.* Gilolo. *a.* Purchased August 7, 1872.

Genus: *Chrysotis.*

C. sallæi, Scl., Salle's Amazon. *Hab.* St. Domingo. *a, b.* Purchased August 7, 1872.

C. viridigenalis, Cass, Green-cheeked Amazon. *Hab.* Columbia. *a.* Presented by Miss Schuyler, May 10, 1873.

C. auripalliata (Less.), Golden-naped Amazon. *Hab.* Guatemala. *a.* Presented by Mrs. S. E. Wright, May 23, 1873.

C. amazonica (Linn.), Blue-fronted Amazon. *Hab.* South America. *a.* Presented by Mrs. Peter Buchanan, June 25, 1872.

Order: ACCIPITRES.

Family: *Strigidæ.*

Genus: *Syrnium.*

S. nebulosum (Forst.), Barred Owl. *Hab.* North America. *a.* Presented by Mr. Thomas Fatheringham, January 10, 1873.

Genus: *Bubo.*

B. virginianus (Gm.), Great Horned Owl. *Hab.* North America. *a.* Presented by Mr. B. F. Stiles, January 24, 1872. *b.* Presented by Mr. W. B. Skidmore, February 5, 1872. *c.* Presented by Mr. G. H. Banta, June 15, 1872. *d.* Presented by Mr. Louis Ruhe, October 30, 1872. *e.* Presented by Master Arthur K. Hiscox, November 28, 1872. *f.* Presented by Mr. J. H. Kemp, April 3, 1873.

Genus: *Nyctea.*

N. nivea. (Daud.), Snowy Owl. *Hab.* Northern United States.

a. Presented by Mr. H. S. Jaffray, May 4, 1872. *b*. Presented by Mr. Henry Sansom, May 24, 1872.

Family : *Falconidæ*.

Genus : *Haliætus*.

H. albicilla (Linn.), Sea Eagle. *Hab.* Europe. *a*, *b*. Presented by Consul Heyse, September 28, 1871.

H. leucocephalus Linn., Bald Eagle. *Hab.* North America. *a*, *b*. Presented by Mr. J. N. Jordan, October 28, 1867. *c*. Presented by Mr. William Bement, April 14, 1868. *d*. Presented by Americus Club, September 12, 1868. *e*. Presented by G. T. Laird, October 6, 1868. *f*. Presented by Mr. N. Dexter, January 20, 1869. *g*. Presented by Hon. A. B. Cornell, June 26, 1869. *h*. Presented by Bt. Lieut. Col. H. S. Gansevoort, U. S. A., April 27, 1869. *i*. Presented by Capt. R. W. Reed, May 24, 1869. *j*, *k*. Presented by Mr. William Stuart, May 28, 1869. *l*, *m*. Presented by Hon. Allen Munroe, August 27, 1869. *n*. Presented by Mr. David Wisder, October 22, 1869. *o*. Presented by Hon. William G. Bergen, December 19, 1870. *p*. Presented by Mr. David Johnson, December 13, 1871. *q*. Presented by Mr. William H. Radford, February 5, 1872. *r*. Presented by Mr. William Hegner, July 28, 1872. *s*. Presented by National Republican Committee, September 23, 1872.

Genus : *Thrasætus*.

T. harpyia (Linn.), Harpy Eagle. *Hab.* South America. *a*. Presented Frebuary 23, 1872. *b*. Placed on exhibition February 13, 1873.

Genus : *Buteo*.

B. borealis (Gm.), Red-tailed Hawk. *Hab.* Eastern North America. *a*. Presented by George E. Sherman, April 3d, 1872.

Genus : *Archibuteo.*

A. lagopus (Gm.), Rough-legged Hawk. *Hab.* North America. *a, b.* Presented by Mr. Clinton L. Bagg, June 22d, 1872. *c.* Presented by Mr. H. F. Simmons, April 24, 1873.

Family : *Cathartidæ.*

Genus : *Gyparchus.*

G. papa (Linn.), King Vulture. *Hab.* South America. *a.* Placed on exhibition June 12, 1871. *b.* Placed on exhibition February 12, 1873. *c.* Placed on exhibition May 23, 1873.

Order : PULLASTRÆ.

Family : *Columbidæ.*

Genus : *Columba.*

C. livia, var. *domesticus*, Linn., Domestic Pigeon. *a–y.* bred in the menagerie.

Genus : *Gopelia.*

G. striata (Linn.), Barred Dove. *Hab.* India. *a–c.* Presented by Mr. C. Knapp, January 9, 1873.

Genus : *Turtur.*

T. chinensis (Scop.), Chinese Dove. *Hab.* India. *a, b.* Purchased January 9, 1873.

T. risorius (Linn.), Turtle Dove. *Hab.* Africa and India. *a.* Presented by Mr. H. R. Bishop, August 26, 1871. *b–d.* Presented by Master Leonard Benedicks, September 10, 1871. *e.* Presented by Mr. Frank Copeland, September 18, 1871. *f.* Presented March 17, 1873.

Family : *Penelopidæ.*

Genus : *Penelope.*

P. greeyi (Gray), Greey's Guan. *Hab.* New Granada. *a.*

Presented by Hon. Hamilton Fish, Secretary of State, October 24, 1870.

Family: *Cracidæ.*

Genus: *Crax.*

C. alector, Linn., Crested Curassow. *Hab.* Guiana. *a.* Presented by Hon. Hamilton Fish, Secretary of State, October 15, 1870. *b.* Presented by Mr. Franklin Allen, July 10, 1871.

Order: GALLINÆ.

Family: *Meleagrididæ.*

Genus: *Meleagris.*

M. mexicanus, var. *domesticus* (Linn.), Domestic Turkey. Albino var. *a.* Presented by Mrs. Kelly, March 13, 1871. *b.* Received in exchange May 11, 1872.

Family: *Perdicidæ.*

Genus: *Ortyx.*

O. virginianus (Linn.), Common Quail. *Hab.* United States. *a–f.* Presented by Mr. John D. Crimmins, April 16, 1873. *g.* Presented by Edwards Hall, M. D., May 19, 1873.

Family: *Numididæ.*

Genus: *Numida.*

N. meleagris (Linn.), Guinea-fowl. *Hab.* Africa. 48 specimens bred in the menagerie.

Family: *Pavonidæ.*

Genus: *Pavo.*

P. cristatus, Linn., Peafowl. *Hab.* India. *a, b.* Placed on exhibition October 17, 1871. Albino var., *c, d.* Presented by Misses S. V. and E. Beach, June 26, 1871. *e.* Presented by Master Victor C. Sanford, November 19, 1872. 26 specimens bred in the menagerie.

Family : *Phasianidæ.*

Genus : *Phasianus.*

P. colchicus, Linn., English Pheasant. *Hab.* British Islands. *a.* Presented by Samuel W. Francis, M D., June 6, 1871. *b.* Purchased 1871. *c.* Placed on exhibition February 12, 1873. *d.* Hybrid between this species and Gallus domesticus, Presented by Mr. J. Brice, March 4, 1873.

P. torquatus, Gm., Ring-necked Pheasant. *Hab.* China. *a.* Purchased March 6, 1871.

Genus : *Thaumalea.*

T. picta (Linn.), Golden Pheasant. *Hab.* China. *a–h.* Placed on exhibition August 15, 1873. *i–l.* Placed on exhibition May 16, 1873.

Genus : *Euplocamus.*

E. nycthemerus (Linn.), Silver Pheasant. *Hab.* China. *a.* Presented by Mr. R. L. Maitland, Jr., February 26, 1867. *b, c.* Placed on exhibition January, 1872. *d.* Bred in the Menagerie. *e–k.* Placed on exhibition May 16, 1873.

E. albo cristatus (Vig.), White-crested Kaleege. *Hab.* Northwest Himalayas. *a.* Hybrid, between this species and *E. nycthemerus.* Presented by Mr. J. Brice, March, 4, 1873.

Genus : *Gallus.*

G. domesticus, Linn., Domestic Fowl. *a.* Silky var. Presented by Dr. J. P. Macgowan, February 9, 1869. *b.* Silky var. Presented by Mr. A. M. Halsted, May 14, 1873. *c.* Hybrid var. Presented by Mr. W. B. Dinsmore, June 1, 1869. *d.* Hybrid var. Presented by Mr. W. H. Bailey, December 15, 1871.

Order : BREVIPENNES.

Family : *Struthionidæ.*

Genus : *Struthio.*

S. camelus, Linn., Ostrich. *Hab.* Africa. *a.* Placed on exhibition September 9, 1871. *b.* Placed on exhibition April 12, 1872.

Family : *Casuariidæ*

Genus : *Casuarius.*

C. galeatus, Vieill., Common Cassowary. *Hab.* Ceram. *a, b.* Placed on exhibition May 16, 1873.

Genus : *Dromæus.*

D. novæ-hollandiæ, Vieill., Emu. *Hab.* Australia. *a.* Purchased May 23, 1871. *b, c.* Placed on exhibition May 16, 1872

Order : GRALLÆ.

Family : *Gruidæ.*

Genus : *Grus.*

G. cinearea, Bechst., European Crane. *Hab.* Europe. *a.* Presented by Consul Heyse, Swindimundi, Prussia, September 28, 1871.

G. canadensis (Linn.), Sand-hill Crane. *Hab.* Western United States. *a.* Presented by Mr. Ira Spaulding, April 8, 1872.

Family : *Ciconiidæ.*

Genus : *Ciconia.*

C. nigra, Ray., Black Stork. *Hab.* Europe and Africa. *a–c.* Purchased October 17, 1871. *d–f.* Placed on exhibition April 7, 1873.

Genus : *Xenorhynchus.*

X. senegalensis, Shaw., Saddle-billed Stork. *Hab.* West Africa. *a.* Purchased October 17, 1871.

Genus : *Leptoptilus.*

L. crumeniferus (Cuv.), Marabou Stork. *Hab.* West Africa. *a.* Placed on exhibition May 14, 1872.

Family : *Ardeidæ.*

Genus : *Ardea.*

A. cinerea, Linn., English Heron. *Hab.* Europe. *a.* Presented by W. A. Conklin, October 27, 1869.

A. herodias, Linn., Blue Heron. *Hab.* United States. *a.* Presented by Mr. A. J. Huntoon, April 19, 1871. *b.* Presented by Mr. B. F. McCreary, August 23, 1872.

Genus : *Demeigretta.*

D. pealii, Bonap., Peal's Egret. *Hab.* Florida. *a.* Placed on exhibition August 2, 1871.

Genus : *Nyctiardea.*

N. gardeni (Gm.), Night Heron. *Hab.* United States. *a.* Presented 1871.

Genus : *Tigrisoma.*

T. cabanisi (Heine.), Bittern. *Hab.* Central America. *a.* Presented by Mr. Henry Arthur, October 28, 1865.

Family : *Rallidæ.*

Genus : *Rallus.*

R. crepitans, Gm., Clapper Rail. *Hab.* United States. *a.* Presented by Prof. Schumpff, October 11, 1872.

Order : LAMELLIROSTRES.

Family : *Anatidæ.*

Genus : *Cygnus.*

C. olor (Gm.), White Swan. *Hab.* Europe. 43 specimens bred in the menagerie.

C. buccinator, Rich., Trumpeter Swan. *Hab.* North America. *a.* Presented by Adolph Strauch, September 23, 1865.

C. atratus, Lath., Black Swan. *Hab.* Australia. *a.* Presented by Mr. Charles M. Rice, August 25, 1869. *b, c.* Placed on exhibition May 9, 1873.

Genus: *Plectropterus*.

P. gambensis (Linn.), Spur-winged Goose. *Hab.* West Africa. *a, b.* Purchased May 31st, 1871.

Genus: *Chenalopex*.

C. jubata (Spix.), Orinoco Goose. *Hab.* South America. *a.* Purchased September 19, 1871.

Genus: *Anser*.

A. brachyrhynchus, Baill, Pink-footed Goose. *Hab.* Europe. *a, b.* Purchased May 23, 1871.

A. cygnoides, Linn., Chinese Goose. *Hab.* China. *a–d.* Presented 1869.

Genus: *Bernicla*.

B. leucopsis, Bechst., Bernicle Goose. *Hab.* Northern Europe. *a, b.* Purchased May 23, 1871.

B. canadensis (Linn.), Canada Goose. *Hab.* Northern United States. *a–c.* Presented by Hon. August Belmont, May 14, 1870. *d–e.* Presented 1870. *f–l.* Purchased September 12, 1872.

Genus: *Dendrocygna*.

D. autumnalis (Linn.), Red-billed Tree Duck. *Hab.* South America. *a, b.* Purchased May 23, 1871.

Genus: *Anas*.

A. domesticus, Linn., Domestic Duck. Rouen var., 9 specimens bred in the menagerie. Cayuga var. 2 specimens presented by Mr. J. Y. Bicknell, October 12, 1872. White var, 50 specimens bred in the menagerie.

Genus : *Mergus.*

M. serrator, Linn., Red-breasted Merganser. *Hab.* North America. *a.* Presented by Mr. Charles Shultz, April 29, 1873.

Order : STEGANOPODES.

Family : *Pelecanidæ.*

Genus : *Pelecanus.*

P. fuscus, Linn., Brown Pelican. *Hab.* Southern United States. *a.* Purchased October 17, 1871. *b.* Presented by Mr. John S. Tenner, November 2, 1871. *c.* Presented by Mr. Louis Isaacs, October 9, 1871. *d.* Presented March 25, 1873.

Family : *Plotidæ.*

Genus : *Plotus.*

P. anhinga, Linn., Water Turkey. *Hab.* Southern United States. *a.* Placed on exhibition July 17, 1872.

Order : LONGIPENNES.

Family : *Laridæ.*

Genus : *Larus.*

L. argentatus, Brunn., Herring Gull. *Hab.* United States. *a.* Presented by Master Robert Brown, April 2, 1872.

Order : PYGOPODES.

Family : *Colymbidæ.*

Genus : *Colymbus.*

C. torquatus (Linn.), Great Northern Diver. *Hab.* North America. *a.* Placed on exhibition May 16, 1873.

Family: *Podicipidæ.*

Genus: *Podilymbus.*

P. podiceps (Linn.), Pied-bill Grebe. *Hab.* Atlantic States. *a.* Presented by Mr. Patrick Foley, April 5, 1873.

REPTILIA.

Order: CROCODILIA.

Family: *Crocodilidæ.*

Genus: *Alligator.*

A. mississippiensis (Daud.), Alligator. *Hab.* Southern United States. *a.* Presented by Mr. Harry McCoun, April 27, 1871. *b.* Presented by Mr. William Miller, June 3d, 1871. *c.* Presented by Mr. John S. Griffiths, June 4, 1871. *d.* Purchased July 10, 1871. *e.* Presented by Mr. Louis W. Blake, October 2, 1871. *f, g.* Placed on exhibition June 26, 1872. *h.* Presented by Mr. A. P. Barnard, June 24, 1872. *i.* Presented by Mr. C. Brand, July 18, 1872. *j.* Presented by Mr. J. Polk Hewett, August 10, 1872. *k.* Presented by Mr. F. W. Parry, September 23, 1872. *l.* Presented by Mr. J. A. Aspinwall, September 23, 1872. *m.* Presented by Mr. Augustus S. Jenkins, December 25, 1872. *n, o.* Presented by Mr. E. Myer, March 8, 1873. *p, q.* Placed on exhibition April 4, 1873. *r.* Presented by Mr. F. W. Hutchins, April 26, 1873. *s.* Presented by Mr. L. W. Parker, May, 9, 1873. *t.* Presented by Master Nelson T. Sansom, May 24, 1873. *u.* Presented by Mr. Douglas Hilger, May 26, 1873. *v.* Presented by Miss Hattie Banks, May 27, 1873. *w.* Presented by Miss M. F. de Velasco, May 31, 1873.

Order: SAURIA.

Family: *Iguanidæ.*

Genus: *Phrynosoma.*

P. cornuta, Gray, Horned Toad. *Hab.* Texas. *a.* Presented by Mr. William Evans, June 6, 1872. *b.* Presented by Mr. Ben. Honnet, October 15, 1872.

Order: OPHIDIA.

Family: *Boidæ.*

Genus: *Boa.*

B. constrictor, Linn., Common Boa. *Hab.* South America. *a. d.* Placed on exhibition October, 1872.

Genus: *Eunectes.*

E. murinus (Linn.), Anaconda. *Hab.* South America. *a.* Placed on exhibition October, 1872.

Family: *Coluberidæ.*

Genus: *Pituophis.*

P. melanoleucus, Halbr., Pine Snake. *Hab.* New Jersey. *a.* Presented August, 1872.

Family: *Viperidæ.*

Genus: *Vipera.*

V. berus, Linn., Common Adder. *Hab.* North America. *a.* Presented by Mr. H. Grosmayer, June 20, 1872.

Family: *Crotalidæ.*

Genus: *Crotalus.*

C. durisses, Linn., Common Rattlesnake. *Hab.* United States. *a.* Presented by Mr. W. A. Green, May 31, 1872. *b, c.* Presented by Arthur Mathewson, M. D., June 1, 1872. *d, e.* Presented by Mr. Albert H. Thayer, June 1, 1872. *f.* Placed on exhibition May 23, 1873.

C. horridus, Linn., Diamond Rattlesnake. *Hab.* Western United States. *a.* Presented by Mr. W. H. Green, May 31, 1872. *b.* Presented by Mr. Robert Barry, April 9, 1873.

List of Animals which have been bred in the Menagerie during the year.

2	Lions.	*Felis leo.*	Africa.
1	Leopard.	*Felis leopardus.*	Africa.
2	Pumas.	*Felis concolor.*	North America.
1	Spotted Hyena.	*Hyæna crocuta.*	South Africa.
1	Camel.	*Camelus dromedarius.*	Arabia.
1	Cape Buffalo.	*Bubalus caffer.*	South Africa.
2	Fat-tailed Sheep,	*Ovis aries.*	Syria.
6	Red Deer.	*Cariacus virginianus.*	United States.
13	Guinea Fowls.	*Numida meleagris.*	Africa.
11	Pea Fowls.	*Pavo cristatus.*	India.
16	Swans.	*Cygnus olor.*	Europe.
6	Rouen Ducks.	*Anas domesticus.*	France.
100	White Ducks.	*Anas domesticus.*	

List of Species which have been exhibited for the first time during the year.

Mammalia.

QUADRUMANA.

Sooty Mangabey.	*Cercobus fuliginosus.*	West Africa.
Bonnet Macaque.	*Macacus sinicus.*	India.
Toque Monkey.	*Macacus pileatus.*	Ceylon.
Macaque Monkey.	*Macacus cynomolgus.*	India.

Guinea Baboon.	*Cynocephalus sphinx.*	West Africa.
Spider Monkey.	*Ateles melanochir.*	Cent'l America.
CARNIVORA.		
Striped Hyena.	*Hyæna striata.*	India.
Mausanga Paradoxure.	*Paradoxurus musanga.*	India.
Suricate.	*Suricata zenik.*	South Africa.
Polar Bear.	*Ursus maritimus.*	Polar regions.
Sea Lion.	*Eumetopias stelleri.*	Pacific Ocean.
RODENTIA.		
Capybara.	*Hydrochærus capybara.*	South America.
UNGULATA.		
Giraffe.	*Giraffa camelopardalis,*	Africa.
Dorcas Gazelle.	*Gazella dorcas.*	North Africa.
Syrian Goat.	*Capra hircus.*	North Africa.
African Sheep.	*Ovis aries.*	South Africa.
Aoudad.	*Ovis tragelaphus.*	North Africa.
Sambur Deer.	*Rusa aristotelis.*	India.
Large-eared Brocket.	*Coassus auritus.*	Brazil.
African Hog.	*Sus Scrofa.*	North Africa.
Shetland Pony.	*Equus caballus.*	Shetland Isl'ds.
East India Pony.		India.
Malayan Tapir.	*Tapirus malayanus.*	Sumatra.
SIRENIA.		
Manatee.	*Manatus americanus.*	E.C. of America.
MARSUPIALIA.		
Mauge's Dasyure.	*Dasyurus maugæi.*	Australia.

Aves.

PASSERES.

Amaduvade Finch.	*Estrelda amadava.*	India.
Common Wax-bill.	*Estrelda sinerea.*	West Africa.
Cut-throat Finch.	*Amadina fasciata.*	West Africa.
Crow Black Bird.	*Lampropsar tanagrinus.*	Bahia.
Larger Hill Mynah.	*Gracula intermedia.*	Northern India.

ZYGODACTYLI.

Paisano.	*Geococcyx californianus.*	Texas.
Leadbeater's Cockatoo.	*Cacatua leadbeateri.*	Australia.
Slender-billed Cockatoo.	*Liemctis tenuirostris.*	Australia.
Carolina Conure.	*Conurus carolinensis.*	Southern U. S.
Barraband's Parrakeet.	*Polytelis barrabandi.*	N. S. Wales.
Grand Electus.	*Electus grandis.*	Gilolo.
Salle's Amazon.	*Chrysotis sallaei.*	St. Domingo.
Green-cheeked Amazon.	*Chrysotis viridigenalis.*	Columbia.
Golden-naped Amazon.	*Chrysotis auripalliata.*	Guatemala.
Blue-fronted Amazon.	*Chrysotis amazonica.*	South America.

PULLASTRÆ.

Barred Dove.	*Gopelia striata.*	India.
Chinese Dove.	*Turtur chinensis.*	India.

GRALLÆ.

Marabou Stork.	*Leptoptilus crumeniferus.*	West Africa.

LAMELLIROSTRES.

Red-breasted Merganser.	*Murgus serrator.*	North America.

STEGANOPODES.

Water Turkey.	*Plotus anhinga.*	Southern U. S.

Longipennes.		
Pied-bill Grebe.	*Podilymbus, podiceps.*	Atlantic States.

Reptilia.

Ophidia.		
Pine Snake.	*Pituophis melanoleucus.*	New Jersey.
Common Adder.	*Vipera berus.*	North America.

SUPPLEMENTARY REPORT OF THE DIRECTOR OF THE CENTRAL PARK MENAGERIE FOR THE PERIOD OF SEVEN MONTHS FROM 1ST OF JUNE TO 31ST DECEMBER, 1873.

To the Board of Commissioners of the Department of Public Parks:

GENTLEMEN,—I have the honor to present the following Supplementary Report of the Central Park Menagerie, from June 1st to December 31st, 1873, including a classified list of the animals presented to the Menagerie and of those placed on exhibition during that period.

The additions to the collection have numbered 280, made in the following manner:

	MAMMALIA.	BIRDS	REPTILES.	TOTAL.
By gift	46	47	9	102
Placed on exhibition	76	15	5	96
Purchased	1	4	....	5
Received in exchange	4	4	....	8
Born in Menagerie	9	52	....	61
Captured on Park	....	8	....	8
	136	130	14	280

As will be seen from the subjoined table, the sums expended in the purchase of animals for the past two years have been, compared with the previous year, exceedingly small—the Menagerie depending almost entirely on gifts and specimens placed on exhibition:—

	1871.	1872.	1873.
Mammalia	$4,013 50	$60 00	$50 00
Birds	695 50	550 00	20 00
Reptiles	27 00	....	....
	$4,736 00	$610 00	$70 00

The number of visitors to the Menagerie during the past year averaged over 7,000 daily; being more than twice as many as visited the London, Dublin and Hamburg gardens combined. The obvious inference is, that no feature of the Park has thus far proved so attractive to the multitudes of visitors, who daily throng its walks, and is a convincing proof of the necessity of establishing a complete and permanent Menagerie on a plan similar to that of the Jardin des Plantes of Paris.

The authorities of that city, recognizing the inestimable advantages to be derived by the public from the constant observation of the habits of animals, their endless varieties and wonderful peculiarities, have spared neither efforts nor expense to found a complete collection.

The temporary exhibition of borrowed specimens can never be a source of so great an interest or instruction to the observer, inasmuch as the arbitray removal of them at any moment takes away the hope of a protracted and satisfactory examination. The naturalist, who wishes to ascertain by patient and industrious watching, the true basis of a zoological classification, not only must have within reach a numerous and well assorted collection, but must be assured that his task will not be frustrated in a moment, nor the results of assiduous observation go for nothing.

The propagation of animals in the Menagerie, for which a complete collection would also afford opportunities, is a subject of interest not only to the naturalist, but to the ordinary observer, and would prove a fruitful source of revenue through the sale of animals. By this means, too, exchanges of specimens with the different gardens could be effected.

The following comparative exhibit of the expenses of maintaining different collections will show that, in providing for the wants of the animals in this Menagerie, the most rigid economy has prevailed:

	CENTRAL PARK MENAGERIE.			LONDON GARDEN.			HAMBURG GARDEN.			DUBLIN GARDEN.		
	Mammals.	Birds.	Reptiles.	Mammals.	Birds.	Reptiles.	Mammals.	Birds.	Reptiles.	Mammals.	Birds.	Reptiles.
No of specimens exhibited during year	367	456	40	573	1,208	229	295	1,115	....	174	220	
Salaries and wages			$7,700 00			$24,110 00			$10,131 00			$3,685 00
Provisions			6,665 00			22,095 00			7,845 00			5,085 00
Menagerie expenses			840 00			11,025 00			2,932 00			1,280 00
Total			$15,205 00			$57,230 00			$20.908 00			$10,050 00

Among the valuable gifts to the Department may be mentioned the following:

One young Lion, *Felis leo*, presented by Mr. Thomas C. Durant.

One Gentle Cat, *Felis mitis*, presented by Lieut. J. W. Miller, U. S. N., brought from Nicaragua. This species is the smallest of the South American ocelots, and occurs in Central America and the northern portions of South America.

Two Kerry Cattle, *Bos taurus*, imported from Ireland, presented by Mr. Thomas P. Ramsdell.

One Burrowing Owl, *Pholeoptynx cunicularia*, which alighted on board of the ship *Lord Clarendon*, 250 miles from the coast of Uruguay, presented by Capt. A. W. Lavender.

One Aplomado Hawk, *Falco femoralis*, presented by Ernst F. Hofmann, M. D. It is a native of South America and Mexico. In Chili this bird is used in hunting the partridge.

One rare Thrush, *Turdus magallenicus*, from Chili, presented by Mrs. Mary J. Conklin.

Of most importance among the births are:

Two Lions, *Felis leo*, being the second litter in one year from the same lioness.

Four Pumas, *Felis concolor*.

One Cape Buffalo, *Bubalas caffer*. This is the fourth specimen born in the Menagerie.

One Wapiti, *Cervus canadensis*.

The following are some of the rarest specimens placed on exhibition:

One Negro Monkey, *Lagothrix humboldtii*, exhibited by Mr. P. T. Barnum. Humboldt, during his visit to South America, first discovered this animal on the Guaviare, a branch of the Orinoco.

One Sloth Bear, *Melursus labiatus*, a native of India, exhibited by Messrs. Charles Reiche & Bro.

One Ant Bear, *Orycteropus æthiopicus*, a native of northeast Africa, exhibited by Mr. Louis Ruhe. This was the first of the species ever brought to America. It remained in the Menagerie thirty-three days, during which time it attracted much attention.

One Condor, *Sarcorhampus gryphus*, exhibited by Mr. D. H. Bumpus. This bird was captured on Mount Chimborazo.

Two Fallow Deer were received from the London Zoological Society, in exchange for a pair of Virginia Deer. For the transportation of these animals, free of expense, the Menagerie is indebted to the White Star Line.

The Library has received the following publications:

Smithsonian Reports, 1860–71, 11 vols.

Report of the Zoological Society, London, 1873.

Catalogue of the Library Zoological Society, London, 1872.

Eilfter-Bericht der Zoologischen Gesellschaft in Hamburgh, 1873.

Bulletin mensuel de la Societe d'acclimation, No. 8, 1873.

Appleton's Journal,
Forest and Stream,
La Chasse, Illustrée,
American Sportsman,
Pet. Stock & Poultry Bulletin,
Der Zoologische Garten.

Notwithstanding the insufficiency of accommodation, the mortality has been very light. Yet I have no hesitation in stating that it would be still less were the sanitary conditions of the buildings better, overcrowding being the chief fault to be complained of. The herbivora and the carnivora should be placed in separate buildings, as the present one is barely sufficient for the purposes of a carnivorium.

The monkey house is exposed to frequent currents of air, and the prevalence of pneumonia among its occupants is the consequence.

The most important among the deaths were those of the Manatee, *Manatus Americanus*, and the Elk, *Cervus canadensis*. The Manatee had been in the Menagerie for five months, and during that time required unusual care, owing to the difficulty of adapting it to the changed condition of its capitivity. Every effort was made to nurse it successfully, but it resisted all treatment, and died of inanition. The post-mortem examination revealed no organic lesion. The skin was prepared and sent to the Smithsonian Institute, Washington.

The Elk had been in the Menagerie 8¾ years, and died of acute inflammation of the bowels.

The total number of animals in the Menagerie December 31, belonging to the Department:

	NUMBER.	SPECIES.	VALUE.
Mammals	116	48	$13,144 00
Birds	251	80	3,231 00
Reptiles	14	4	112 00
Total	381	132	$16,487 00

The number of animals on exhibition on the same date not belonging to the Department:

	NUMBER.	SPECIES.	VALUE.
Mammals	48	26	$31,850 00
Birds	20	9	655 00
Reptiles	6	2	110 00
Total	74	37	$32,615 00

Making a total value of the specimens on exhibition $49,102.00.

Respectfully,

WILLIAM A CONKLIN,

Director.

Mammalia.

Order : QUADRUMANA.

Family : *Cercopithecidæ.*

Genus : *Semnopithecus.*

S. cristatus, Is Geoff., Chingkau Monkey. *Hab.* Sumatra. *a.* Placed on exhibition December 16, 1873.

Genus : *Chlorocebus.*

C. pygerythrus, F. Cuv., Vervet Monkey. *Hab.* South Africa. *a.* Presented by Mr. C. E. Hunter, September 26, 1873.

Genus : *Macacus.*

M. sinicus, Desm., Bonnet Monkey. *Hab.* India. *b.* Placed on exhibition December 6, 1873.

M. nemestrinus, (Linn.), Pig-tailed Monkey. *Hab.* Java. *d.* Placed on exhibition September 30, 1873.

M. cynomolgus, (Linn.), Macaque Monkey. *Hab.* India. *d.* Placed on exhibition December 5, 1873.

M. erythræus, (Schreb.), Rhesus Monkey. *Hab.* India. *f.* Placed on exhibition November 13, 1873. *g.* Placed on exhibition December 30, 1873.

Genus: *Cynocephalus.*

C. porcarius, (Bodd.), Chacma Baboon. *Hab.* South Africa. *f, g.* Placed on exhibition July 4, 1873.

C. sphinx, (Linn.), Guinea Baboon. *Hab.* West Africa. *d–k.* Placed on exhibition July 4, 1873.

C. mormon, (Linn.), Mandrill. *Hab.* West Africa. *a.* Placed on exhibition July 2, 1873.

Family: *Cebidæ.*

Genus: *Ateles.*

A paniscus, (Linn.), Red-faced Spider Monkey. *Hab.* Guiana. *a, b.* Placed on exhibition October 8, 1873. *c.* Placed on exhibition November 11, 1873.

A. belzebuth, (Geoff.), Marimonda Spider Monkey. *Hab.* Guiana. *b.* Placed on exhibition October 1, 1873.

Genus: *Lagothrix.*

L. humboldtii, (Geoff.), Humboldt's Lagothrix. *Hab.* Peru. *a.* Placed on exhibition June 27, 1873.

Genus: *Cebus.*

C. apella, (Linn.), Brown Capuchin. *Hab.* Brazil. *f.* Placed on exhibition July 2, 1873. *g.* Presented by Mrs. Fred. Lewis, December 15, 1873.

C. capucinus, Geoff., Weeper Capuchin. *Hab.* Brazil. *e.* Placed on exhibition September 18, 1873.

Family: *Hapalidæ.*

Genus: *Jacchus.*

J. vulgaris (Linn.), Black-eared Marmoset. *Hab.* Brazil. *d.*

Presented by V. Mott Francis, M. D., August 7, 1873. *e.* Presented by Mrs. V. E. Wetmore, September 3, 1873. *f, g.* Presented by Mr. Hubert Gibson, October 29, 1873.

Order: CARNIVORA.

Family: *Felidæ.*

Genus: *Felis.*

F. leo, Linn., Lion. *Hab.* Africa and Southwestern Asia. *l, m.* Born in the Menagerie, June 22, 1873. *n.* Presented by Mr. Thomas C. Durant, July 3, 1873.

F. tigris, Linn., Tiger. *Hab.* India. *f, g.* Placed on exhibition August 28, 1873.

F. leopardus, Linn., Leopard. *Hab.* Southern Asia and Africa. *n.* Placed on exhibition October 8, 1873.

F. concolor, Linn., Puma. *Hab.* North and South America. *h-k.* Born in the Menagerie, July 5, 1873.

F. pardalis, Linn., Ocelot. *Hab.* Texas and South America. *b.* Placed on exhibition October 8, 1873. *c.* Placed on exhibition September 20, 1873.

F. mitis, F. Curv., Gentle Cat. *Hab.* Nicaragua. *a.* Presented by Lieut. J. W. Miller, U. S. N., Oct. 8, 1873.

F. serval, Schreb., Serval. *Hab.* Africa. *a, b.* Placed on exhibition July 19, 1873.

Genus: *Lynx.*

L. rufus, Raf., Wild Cat. *Hab.* North America. *c.* Placed on exhibition August 12, 1873.

Family: *Hyænidæ.*

Genus: *Hyæna.*

H. crocuta, Erxl., Spotted Hyena. *Hab.* South Africa. *c.* Placed on exhibition November 17, 1873.

Family: *Canidæ.*

Genus: *Canis.*

C. latrans, Say., Prairie Wolf. *Hab.* Western United States. *e.* Placed on exhibition July 5, 1873.

C. occidentalis, var. *ater*, Rich., Black Wolf. *Hab.* Southern United States. *b.* Presented by Mr. W. P. Bensel, July 30, 1873.

C. familiaris, Linn., Chihuahua Dog. *Hab.* Mexico. *a.* Presented by Mr. F. Bowen, S. S. Colon, July 17, 1873.

Genus: *Vulpes.*

V. fulvus, Desm., Red Fox. *Hab.* North America. *h, i.* Presented by Mr. Henry D. Felter, July 31st, 1873.

V. virginianus, Rich., Gray Fox. *Hab.* United States. *e, f.* Presented by Messrs. Melius, Trask & Ripley, July 10, 1873.

Family: *Mustelidæ.*

Genus: *Putorius.*

P. cicognanii, Bonap., Brown Weasel. *Hab.* North America. *a, b.* Presented by Master Charles A. Heald, August 2, 1873.

P. vison, Briss., Common Mink. *Hab.* North America. *a.* Presented by Mr. Charles H. Bohde, July 16, 1873.

Genus: *Taxidea.*

T. americana (Zimm.), American Badger. *Hab.* North America. *a.* Placed on exhibition July 4, 1873.

Genus: *Mephitis.*

M. mephitica (Shaw.), Common Skunk. *Hab.* United States. *b–e.* Presented by Master Bennie P. Hope, June 13, 1873.

Family: *Ursidæ.*

Genus: *Ursus.*

U. americanus, Pall., Black Bear. *Hab.* United States. *l, m,* Placed on exhibition June 5, 1873. Captured in Ulster County, New York. *n.* Young. Presented by Mr. M. H. Alberger, October 22, 1873.

Genus: *Melursus.*

M. labiatus, (Blainv.), Sloth Bear. *Hab.* India. *a.* Placed on exhibition August 28, 1873.

Family: *Procyonidæ.*

Genus: *Procyon.*

P. lotor, Storr., Raccoon. *Hab.* United States. *k.* Presented by Mr. S. G. Friedenrich, August 21, 1873.

Family: *Phocidæ.*

Genus: *Phoca.*

P. vitulina, Linn., Common Seal. *Hab.* North Atlantic. *b*, *c*. Placed on exhibition June 4, 1873. *d–f.* Placed on exhibition July 4, 1873.

Order: RODENTIA.

Family: *Sciuridæ.*

Genus: *Sciurus.*

S. vulpinus, Gm., Southern Fox Squirrel. *Hab.* Southern United States. *a.* Presented by Mr. M. C. Lefferts, December 8, 1873.

S. carolinensis, Gm., Gray Squirrel. *Hab.* United States. *j.* Presented by Mrs. Anna Meyer, August 29, 1873. *k*, *l.* Presented by Mrs. S. J. Zabriskie, September 29, 1873. *m.* Presented by Miss Annie Clevenger, October 4, 1873.

S. hypophyrrhus, Wagl., Red-bellied Squirrel. *Hab.* Vera Cruz. *a.* Presented by Master D. S. Wylie, September 27, 1873.

S. bicolor, Sparrm., Jelerang Squirrel. *Hab.* India. *a.* Presented by Mr. James Egan, July 2, 1873.

Genus: *Pteromys.*

P. volucella, Pall., Flying Squirrel. *Hab.* United States. *d, e.* Presented by Mr. Louis V. Jensen, June 30, 1873. *f.* Presented by Mr. Henry C. Carter, November 29, 1873.

Genus: *Cynomys.*

C. ludovicianus, Ord., Prairie Dog. *Hab.* Western United States. *b.* Presented by Mr. J. McLaren, June 5, 1873.

Genus: *Arctomys.*

A. monax, Gm., Woodchuck. *Hab.* United States. *g.* Presented by Master Frederick H. Blakeman, August 13, 1873. *h, i.* Presented by Mr. James Murtha, August 15, 1873.

Family: *Muridæ.*

Genus: *Mus.*

M. musculus, Linn., House Mouse. *Hab.* Europe. *a, b.* Albinoes. Presented by Miss Rosa Rich, July 12, 1873.

Family: *Hystricidæ.*

Genus: *Erethizon.*

E. dorsatus, F. Curv., White-haired Porcupine. *Hab.* Northern United States. *c, d.* Presented by Mr. J. H. Blood, December, 17, 1873.

Genus: *Capromys.*

C. pilorides, Say., Fournier's Capromys. *Hab.* Cuba. *a–h.* Placed on exhibition July 4, 1873.

Genus: *Hydrochœrus.*

H. capybara, Erxl., Capybara. *Hab.* South America. *b, c.* Placed on exhibition August 6, 1873.

Family : *Leporidæ.*

Genus : *Lepus.*

L. hibernicus (Linn.), Hare. *Hab.* Ireland. *a.* Presented by Mr. Thomas Hamilton, December 24, 1873.

Order : PROBOSCIEDEA.

Family : *Elephantidæ.*

Genus : *Elephas.*

E. indicus, Linn., Indian Elephant. *Hab.* India. *c.* Placed on exhibition June 22, 1873. *f, g.* Placed on exhibition December 4, 1873.

Order : UNGULATA.

Sub-order : ARTIODACTYLA.

Family : *Camelidæ.*

Genus : *Camelus.*

C. bactrinus, Linn., Bactrian Camel. *Hab.* Central Asia. *b–d.* Placed on exhibition June 25, 1873.

Genus : *Auchenia.*

A. glama (Linn.), Llama. *Hab.* South America. *c–f.* Placed on exhibition August 28, 1873.

Family : *Giraffidæ.*

Genus : *Giraffa.*

G. camelopardalis (Linn.), Giraffe. *Hab.* Africa. *d–g.* Placed on exhibition June 25, 1873.

Family : *Bovidæ.*

Genus : *Bos.*

B. taurus, Linn., Domestic Cattle. *Hab.* Ireland. *b, c.* Kerry var. Presented by Mr. Thomas P. Ramsdell, December 24, 1873.

Genus : *Bison.*

B. grunniens (Linn.), Yak. *Hab.* Tibet. *a, b.* Placed on exhibition August 7, 1873.

Genus : *Bubalus.*

B. caffer (Sparrm.), Cape Buffalo. *Hab.* South Africa. *d.* Born in the menagerie July 18, 1873.

Genus : *Catoblepas.*

C. gnu (Gm.), White-tailed Gnu. *Hab.* South Africa. *a.* Placed on exhibition August 28, 1873.

Family : *Cervidæ.*

Genus : *Dama.*

D. vulgaris, Gray, Fallow Deer. *Hab.* Europe. *b, c.* Received in exchange from London Zoological Society, October 1, 1873.

Genus : *Cervus.*

C. canadensis, Erxl., American Elk. *Hab.* Western United States. *i.* Born in the menagerie July 31, 1873.

Genus : *Cariacus.*

C. virginianus, Bodd., American Deer. *Hab.* United States. *f, f.* Born in the menagerie June 25, 1873. *g, g.* Presented August 20, 1873. *h, h.* Placed on exhibition October 6, 1873. *i, i.* Received in exchange November 6, 1873.

Family : *Phacochœridæ.*

Genus : *Phacochœrus.*

P. æthiopicus (Pall.), Æthiopian Wart Hog. *Hab.* South-east Africa. *a.* Placed on exhibition June 25, 1873. *b.* Placed on exhibition July 4, 1873.

Family : *Suidæ.*

Genus : *Dicotyles.*

D. tajacu (Linn.), Collared Peccary. *Hab.* South America. *a.* Placed on exhibition November 29, 1873.

Sub-order : PERISSODACTYLA.

Family : *Equidæ.*

Genus : *Equus.*

E. burchellii, Gray., Burchell's Zebra. *Hab.* South Africa. *c, d.* Placed on exhibition August 7, 1873.

Family : *Tapiridæ.*

Genus : *Tapirus.*

T. americanus (Linn.), American Tapir. *Hab.* South America. *f.* Placed on exhibition June 27, 1873. *g.* Purchased August 1, 1873. *h.* Placed on exhibition August 29, 1873.

Order : EDENTATA.

Family : *Orycteropodidæ.*

Genus : *Orycteropus.*

O. æthiopicus, Sund., Æthiopian Ant Bear. *Hab.* Northeast Africa. *a.* Placed on exhibition June 25, 1873.

Order : MARSUPIALIA.

Family : *Didelphyidæ.*

Genus : *Didelphys.*

D. virginiana, Shaw., Opossum. *Hab.* Southern United States. *k.* Presented by Mr. S. G. Friedenrich, August 21, 1873.

Family : *Macropodidæ.*

Genus : *Halmaturus.*

H. derbianus, Gray., Derbian Wallaby. *Hab.* Australia. *b.* Received in exchange October 2, 1873.

Aves.

Order : PASSERES.

Family : *Turdidæ.*

Genus : *Turdus.*

T. iliacus, Linn., Red-wing Thrush. *Hab.* Europe. *b.* Presented by Mr. J. Brice, Nov. 21, 1873.

T. migratorius, Linn., American Robin. *Hab.* United States. *e–g.* Captured on Central Park July 21, 1873.

T. magellanicus, King, S. A. Thrush. *Hab.* Chili. *a.* Presented by Mrs. Mary J. Conklin, November 13, 1873.

Genus : *Galeoscoptes.*

G. carolinensis (Linn.), Cat Bird. *Hab.* Eastern United States. *a–b.* Captured on Central Park, July 21, 1873.

Family : *Fringillidæ.*

Genus : *Passer.*

P. domesticus, Linn., Sparrow. *Hab.* Europe. *c, d.* Captured on Central Park, July 21, 1873.

Family : *Alaudidæ.*

Genus : *Melanocorypha.*

M. mongolica (Gm.), Chinese Lark. *Hab.* China. *a–c.* Presented by Dr. J. V. Mansfield, July 5, 1873.

Family : *Icteridæ.*

Genus : *Agelæus.*

A. phœniceus (Linn.), Red-wing Blackbird. *Hab.* United States. *a.* Presented by Dr. J. V. Mansfield, July 5, 1873.

Family : *Tyrannidæ.*

Genus : *Tyrannus.*

T. carolinensis, Baird, King Bird. *Hab.* United States. *a.* Presented by Master Thomas Sesnan, July 2, 1873.

Order : ZYGODACTYLI.

Family : *Psittacidæ.*

Genus : *Cacatua.*

C. sulphurea (Gm.), Lesser-sulphur-crested Cockatoo. *Hab.* Moluccas. *b.* Received in exchange, November 24, 1873.

C. philippinarum (Gm.), Red-vented Cockatoo. *Hab.* Philippine Islands. *a.* Presented by Chief Justice Charles P. Daly, October 14, 1873.

C. roseicapilla, Vieill, Roseate Cockatoo. *Hab.* Australia. *f.* Received in exchange, November 24, 1873.

Genus : *Ara.*

A. macao (Linn.), Red and Blue Macaw. *Hab.* South America. *a.* Received in exchange November 24, 1873.

A. ararauna (Linn.), Blue and Yellow Macaw. *Hab.* South America. *f.* Presented by Mr. David H. Tolck, September 23, 1873.

Order : ACCIPITRES.

Family : *Strigidæ.*

Genus : *Otus.*

O. wilsonianus, Less., Long-eared Owl. *Hab.* United States. *a, b.* Presented by Mr. Franklin Benner, July 7th, 1873.

Genus : *Syrnium.*

S. nebulosum, Forster, Barred Owl. *Hab.* North America. *b.* Captured on Central Park, July 3, 1873.

Genus : *Bubo.*

B. virginianus (Gm.), Great Horned Owl. *Hab.* North America. *f.* Presented by Mr. R. H. Harding, June 18, 1873. *g.* Presented by Mr. Charles Grubert, June 27, 1873. *h.* Presented by Mr. E. C. Jefferis, July 2, 1873. *i.* Presented by Mr. John D. Hopkins, July 23, 1873. *j, k.* Presented, July 23, 1873. *l, m.* Presented by Master Willie W. Wilcox, Jr., August 7, 1873.

Genus : *Scops.*

S. asio (Linn.), Mottled Owl. *Hab.* North America. *a.* Presented by Mr. S. Green, August 21, 1873.

Genus : *Pholeoptynx.*

P. cunicularia (Mol.), Burrowing Owl. *Hab.* Brazil. *a.* Presented by Captain A. W. Lavender, ship Lord Clarendon, November 11, 1873.

Family : *Falconidæ.*

Genus : *Aquila.*

A. canadensis (Linn.), Golden Eagle. *Hab.* North America. *a.* Presented by Mrs. Joanna K. Ebbets, August 13, 1873.

Genus : *Haliætus.*

H. leucocephalus, Linn., Bald Eagle. *Hab.* North America. *t.* Presented by Master S. Mortimer Lesher November 1, 1873. Captured in Texas. *u.* Presenetd by Mrs. Capt. O. P. Hazard, November 29, 1873. Captured in Florida.

Genus : *Falco.*

F. femoralis, Temm., Aplomado Hawk. *Hab.* Chili. *a.* Presented by Ernst F. Hofmann, M. D., Dec. 5, 1873.

Genus : *Hypotriorchis.*

H. æsalon (Linn.), Merlin. *Hab.* Europe. *a.* Presented by Mr. John Sutherland, November 13, 1873. Flew on board the S. S. Cuba 250 miles from Queenstown, Ireland.

Genus : *Buteo.*

B. lineatus, Gm., Red-shouldered Hawk. *Hab.* United States. *a.* Presented by Messrs. R. M. Bowne & Son, July 25, 1873.

b. Presented by Mr. Henry Stienway, November 3, 1873. *c.* Presented by Mr. James Halpin, November 19, 1873.

Family : *Cathartidæ.*

Genus : *Cathartes.*

C. aura (Linn.), Turkey Buzzard. *Hab.* United States. *a.* Presented by Mr. Cyrus J. Van Gorder, December, 6, 1873.

Genus : *Sarcorhamphus.*

S. gryphus (Linn.), Condor Vulture. *Hab.* South America. *a.* Placed on exhibition September, 20, 1873.

Order : PULLASTRÆ.

Family : *Columbidæ.*

Genus : *Geopelia.*

G. striata (Linn.), Barred Dove. *Hab.* India. *d, e.* Presented by Dr. J. V. Mansfield, July 5, 1873.

Genus : *Turtur.*

T. risorius (Linn.), Turtle Dove. *Hab.* Africa. *g. h.* Presented by Mr. Dennison Cushing, June 12, 1873. *i.* Presented by Mr. Charles J. Drew, July 3, 1873. *j.* Presented by Miss Blanche P. Brown, July 11, 1873. *k.* Placed on exhibition, July 15, 1873.

Order : GALLINÆ.

Family : *Meleagrididæ.*

Genus : *Meleagris.*

M. gallopavo, Linn., Wild Turkey. *Hab.* Western United States. *a, b.* Purchased December 24, 1873.

M. mexicanus var. *domesticus* (Linn.), Domestic Turkey. *c, d.* Albino var. Bred in the menagerie July, 1873.

Family : *Tetraonidæ.*

Genus : *Bonasa.*

B. umbellus (Linn.), Ruffed Grouse. *Hab.* Eastern United

States. *a.* Presented by Mrs. William D. Sparks, October 26, 1873.

Family : *Numididæ.*

Genus : *Numida.*

N. meleagris (Linn.), Guinea Fowl. *Hab.* Africa. 10 specimens bred in the menagerie.

Family : *Pavonidæ.*

Genus : *Pavo.*

P. cristatus, Linn., Pea Fowl. *Hab.* India. *f.* Presented by Mr. George Bing, September 15, 1873. 10 specimens bred in the menagerie.

P. muticus, Horsf., Javan Pea Fowl. *Hab.* Java. *a, b.* Placed on exhibition October 10, 1873.

Family : *Phasianidæ.*

Genus : *Euplocamus.*

E. nycthemerus (Linn.), Silver Pheasant. *Hab.* China. *l–o.* Placed on exhibition October 8, 1873.

Order : BREVIPENNES.

Family : *Casuariidæ.*

Genus : *Casuarius.*

C. galeatus, Vieill, Common Cassowary. *Hab.* Ceram. *c.* Placed on exhibition June 26, 1873.

Order : GRALLÆ.

Family : *Ardeidæ.*

Genus : *Ardea.*

A. herodias, Linn., Blue Heron. *Hab.* United States. *c, d.* Placed on exhibition September 13, 1873.

Genus : *Butorides*,

B. virescens, Bonap., Green Heron. *Hab.* Eastern United

States. *a. b.* Presented by Master Edward W. Davis, September 20, 1873.

Genus : *Herodias.*

H. egretta, (Gm.), White Heron. *Hab.* Southern United States. *a.* Presented by Master Charles Earle, October 14, 1873.

Genus : *Nyctardea.*

N. gardeni, (Gm.), Night Heron. *Hab.* United States. *b, c.* Presented by Mr. Peter Sutor, July 2, 1873. *d.* Presented by Mr. W. J. L. Davids, August 11, 1873. *e.* Presented by Mr. Louis Ruhe, August 18, 1873.

Family : *Rallidæ.*

Genus : *Aramides.*

A. cayennensis (Gm.), West Indian Rail. *Hab.* West Indies. *a–c:* Placed on exhibition July 4, 1873.

Order : LAMELLIROSTRES.

Family : *Anatidæ.*

Genus : *Cygnus.*

C. olor, (Gm.), White Swan. *Hab.* Europe. 8 specimens bred in the menagerie.

C. atratus, Lath, Black Swan. *Hab.* Australia. *d–g.* Received in exchange August 28, 1873.

Genus : *Chenalopex.*

C. ægyptiaca, (Linn.), Egyptian Goose. *Hab.* Africa. *a.* Placed on exhibition October 8, 1873.

Genus : *Anser.*

A. cygnoides, Linn, Chinese Goose. *Hab.* China. *c.* Presented by Messrs. Steinway and Sons, September 11, 1873.

Genus : *Bernicla.*

B. canadensis (Linn.), Canada Goose. *Hab.* Northern United States. *m, n.* Presented by Messrs. Steinway and Sons, September 11, 1873.

REPTILIA.

Order : TESTUDINATA.

Family : *Emydidæ.*

Genus : *Chelydra.*

C. serpentina, (Linn.), Snapping Turtle. *Hab.* United States. *a.* Presented by Samuel W. Francis, M. D., July 15, 1873.

Family : *Chelonidæ.*

Genus : *Eretmochelys.*

E. imbricata, Fitz., Hawksbill Turtle. *Hab.* warm parts of Atlantic. *a.* Presented by Mr. W. E. Damon, August 19, 1873.

Order : CROCODILIA.

Family : *Crocodilidæ.*

Genus : *Alligator.*

A. mississippiensis (Daud.). Alligator. *Hab.* Southern United States. *x.* Presented by Captain R. W. Lockwood, S. S. Champion, June 27, 1873. *y.* Presented by Mr. George S. Schermerhorn, Jr., July 2, 1873. *z.* Presented by Mr. Edward Butler, September 5, 1873. *aa.* Presented by Mrs. M. A. Hazard, September 19, 1873. *bb.* Presented by Sanford H. Steele, Esq., October 9, 1873.

Order : SAURIA.

Family : *Iguanidæ.*

Genus : *Iguana.*

I. tuberculata, Laur., Tuberculated Iguana. *Hab.* West Indies and Central America. *a.* Placed on exhibition, July 3, 1873. *b.* Presented by Mr. William T. Travis, August 4, 1873.

Genus : *Phrynosoma.*

P. cornuta, Gray, Horned Toad. *Hab.* Texas. *c.* Presented by R. M. Fuller, M. D., June 9, 1873. *d.* Presented by Ernst F. Hofmann, M. D., June 11, 1873. *e.* Presented by P. Albert Morrow, M. D., June 23, 1873. *f.* Presented by Master Paul Voorhess, June 28, 1873. *g, h.* Presented by Mr. William H. Beers, July 9, 1873. *i.* Presented by Mr. Samuel Wetmore, August 1, 1873. *j, k.* Presented by Mr. George Kyte, August 9, 1873. *l, m.* Presented by Mr. E. P. De Mott, September 10, 1873. *n.* Presented by Miss Nina Worth, November 7, 1873.

Order : OPHIDIA.

Family : *Coluberidæ.*

Genus : *Ophibolus.*

O. sayi, B. & G., King Snake. *Hab.* Gulf States. *a.* Placed on exhibition July 5, 1873.

Family : *Crotalidæ.*

Genus : *Crotalus.*

C. horridus, Linn., Diamond Rattlesnake. *Hab.* Southern United States. *c.* Presented by Mr. J. F. Gilbert, June 7, 1873. This snake is seven feet three inches long.

Genus : *Toxicophis.*

T. piscivorus, B. & G., Moccasin Snake. *Hab.* Gulf States. *a–c.* Placed on exhibition July 5, 1873.

List of Animals which have been bred in the Menagerie.

2 Lions.	*Felis leo.*	Africa.
4 Pumas.	*Felis concolor.*	North America
1 Cape Buffalo.	*Bubalus caffer.*	South Africa.

1 American Elk.	*Cervus canadensis.*	W. U. States.
1 Virginia Deer.	*Cariacus virginianus.*	United States.
2 White Turkeys.	*Meleagris domesticus.*	Mexico.
30 Guinea Fowls.	*Numida meleagris.*	Africa.
10 Pea Fowls.	*Pavo cristatus.*	India.
8 White Swans.	*Cygnus olor.*	Europe.

List of Animals Exhibited for the First Time.

Mammalia.

QUADRUMANA.

Chingkau Monkey.	*Semnopithecus cristatus.*	Sumatra.
Red-faced Spider Monkey.	*Ateles paniscus.*	Guiana.
Humboldt's Lagothrix.	*Lagothrix humboldtii.*	Peru.

CARNIVORA.

Gentle Cat.	*Felis mitis.*	Nicaragua.
Serval.	*Felis serval.*	Africa.
Chihuahua Dog.	*Canis familiaris.*	Mexico.
Brown Weasel.	*Putorius cicognanii.*	North America.
Sloth Bear.	*Melursus labiatus.*	India.

RODENTIA.

Southern Fox Squirrel.	*Sciurus vulpinus.*	S. U. States.
Red-bellied Squirrel.	*Sciurus hypopyrrhus.*	Mexico.
Jelerang Squirrel.	*Sciurus bicolor.*	India.
Irish Hare.	*Lepus hibernicus.*	Ireland.

EDENTATA.

Æthiopian Ant Bear.	*Orycteropus æthiopicus.*	N. E. Africa.

Aves.

PASSERES.		
S. A. Thrush.	*Turdus magellanicus.*	Chili.
Chinese Lark.	*Melanocorypha mongolica.*	China.
Red-wing Blackbird.	*Agelæus phœniceus.*	United States.
King Bird.	*Tyrannus carolinensis.*	United States.
ACCIPITRES.		
Burrowing Owl.	*Pholeoptynx cunicalaria.*	Brazil.
S. A. Haw	*Falco femoralis.*	Chili.
Merlin.	*Hypotriorchis æsalen.*	Europe.
Pigeon Hawk.	*Hypotriorchis columbarius.*	N. America.
Red-shouldered Hawk.	*Buteo lineatus.*	United States.
Condor Vulture.	*Sarcorhamphus gryphus.*	S. America.
GALLINÆ.		
Ruffed Grouse.	*Bonasa umbellus.*	E. U. States.
Wild Turkey.	*Meleagris gallopavo.*	W. U. States.
Javan Pea Fowl.	*Pavo muticus.*	Java.
GRALLÆ.		
White Heron.	*Herodias egretta.*	S. U. States.
West Indian Rail.	*Aramides cayennensis.*	S. America.

Reptilia.

OPHIDIA.		
King Snake.	*Ophibolus sayi.*	Gulf States.
Moccasin Snake.	*Toxicophis piscivorus.*	Gulf States.

APPENDIX E.

REPORT

OF THE

CIVIL AND TOPOGRAPHICAL ENGINEER,

ON THE

WORK AT THE NORTH END OF THE ISLAND; THE HARLEM RIVER IMPROVEMENT; AND THE WESTCHESTER DISTRICT.

REPORT

OF THE

CIVIL AND TOPOGRAPHICAL ENGINEER.

CITY OF NEW YORK, DEPARTMENT OF PUBLIC PARKS,
OFFICE OF CIVIL AND TOPOGRAPHICAL ENGINEER,
MT. ST. VINCENT, CENTRAL PARK,
December 31st, 1873.

HON. SALEM H. WALES,
President of the Department of Public Parks:

SIR,—I submit the following report of the progress and condition of the work under my charge, up to the present date.

FIRST DIVISION—*North End of the Island.*

During the past year the laying out of the street, generally known as the Ridge road, has been completed, and the maps and profiles filed. This street extends northwardly from the Eleventh avenue at 159th street, along the ridge between the Kingsbridge road and the Western boulevard, a distance of 12,521.88 feet; the width is generally 80 feet, but is reduced to 60 feet at the northerly end, where it passes over broken and rugged ground.

A short street of 80 feet in width, has been laid out and filed in connection with this street, near its southerly end, extending eastwardly to the Kingsbridge road.

A street, 577 feet in length and 50 feet wide, known as F street, extending northerly from Inwood street to the street known as the Bolton road, has been laid out and filed.

A parade ground, containing 82 acres, has been laid out north of Sherman's creek, and east of the Kingsbridge road, and, a map filed. This was done under the joint action of the Board of Commissioners and the Major-General commanding the first division of the National Guard of the State of New York, in pursuance of chap. 628 of Laws of 1871.

Surveys and examinations have been made for several new streets, which have been applied for by property owners, and for changes of streets formerly laid out but not filed by the Department; several narrow streets, of 30 feet in width, have also been surveyed, for the purpose of affording necessary outlets of drainage and footways from established streets and boulevards. The above work is all situated north of 155th street.

The plan of streets north of Inwood, between the Hudson and Harlem rivers, which was adopted in 1869, has not been filed; the streets, therefore, have not become legally established. The portion of the Kingsbridge road extending through the same district, which was adopted in 1867, is in the same condition.

The bulk-head lines, extending around the north end of the island, from Fifty-fifth street on the Hudson, to Third avenue on the Harlem river, were established by chap. 388 of Laws of 1868, with a provision authorizing the Commissioners to alter and amend any part or parts of the same, along Spuyten Duyvil creek and the Harlem river, if deemed necessary for the public interests.

The exterior, or River street, north of 155th street, on the Hudson and Harlem rivers, was adopted November 25th, 1867, but has not been filed, It is probable that this latter street and the bulk-head lines will require some modifications along Spuyten Duyvil creek and Harlem river, before they are finally established, in order to adapt them to the plan of improved navigation of the Harlem river.

With the exception of such points as may be affected by plans of tunnels and bridges, and their approaches, and by new adaptations of bulk-head lines, there seems to be nothing to prevent the early closing up of all the unfinished and projected work north of 155th street.

SECOND DIVISION—*Harlem River.*

But little work has been done upon the Harlem river Division during the past year. I submit a general statement of the progress that has been made, and the character and condition of the work.

The tidal channel, separating Manhattan Island from the mainland, known under the general name of Harlem river, consists of the Harlem river proper, and Spuyten Duyvil creek, the latter name applying to the narrow and crooked portion of the westerly end, for a distance of 1¼ miles, or from Kingsbridge to the Hudson river. The Harlem river is 7¼ miles long, measuring from its entrance into the East river at the south end of Ward's Island, the whole length of the channel, from river to river, being 8½ miles.

The length, as the channel winds, is 2 miles more than by a straight line. A stretch of about half a mile in the vicinity of Kingsbridge is not navigable, by reason of a broad reef of limestone rock rising here in the bed of the stream to about low water mark. Two bridges also cross this part of the channel. The balance of the stream is considered navigable, the depth, however, being only sufficient, at low tide, to float vessels drawing three to four feet of water in Spuyten Duyvil creek, and five to seven feet of water in three and a half miles of the upper or westerly portion of the Harlem river.

These portions of the channel are narrow and irregular, varying in width, at a depth of six feet below low water, from fifty to two hundred and fifty feet.

The bottom, where rock is not shown, is generally mud and sand, so far as surface indications can determine, no borings or tests having been made of the material, except at points where sites for tunnels or bridges have been examined. The principal rock in the way of improved navigation is that mentioned at Kingsbridge; this rises to about low water mark in the highest part, and has been traced by borings, along the channel to points east and west, where the surface declines to twenty feet or more below low water. The length of the rock, between points where its surface is 12 feet below low water, is 1,300 feet, and the length, between points where the surface is 20½ feet below low water, is about 1,500 feet.

The only other point where rock is distinctly exposed, is at the site of the projected tunnel at the head of Seventh avenue. The surface of the rock is here irregular, having at the deepest part a depth below low water mark of 20½ feet for a width of channel of 80 feet, and rising to the easterly shore to a height of 2½ feet above low water. The portion between the greatest height and a depth of 20½ feet below low water, measures, in the direction of the channel, about 700 feet.

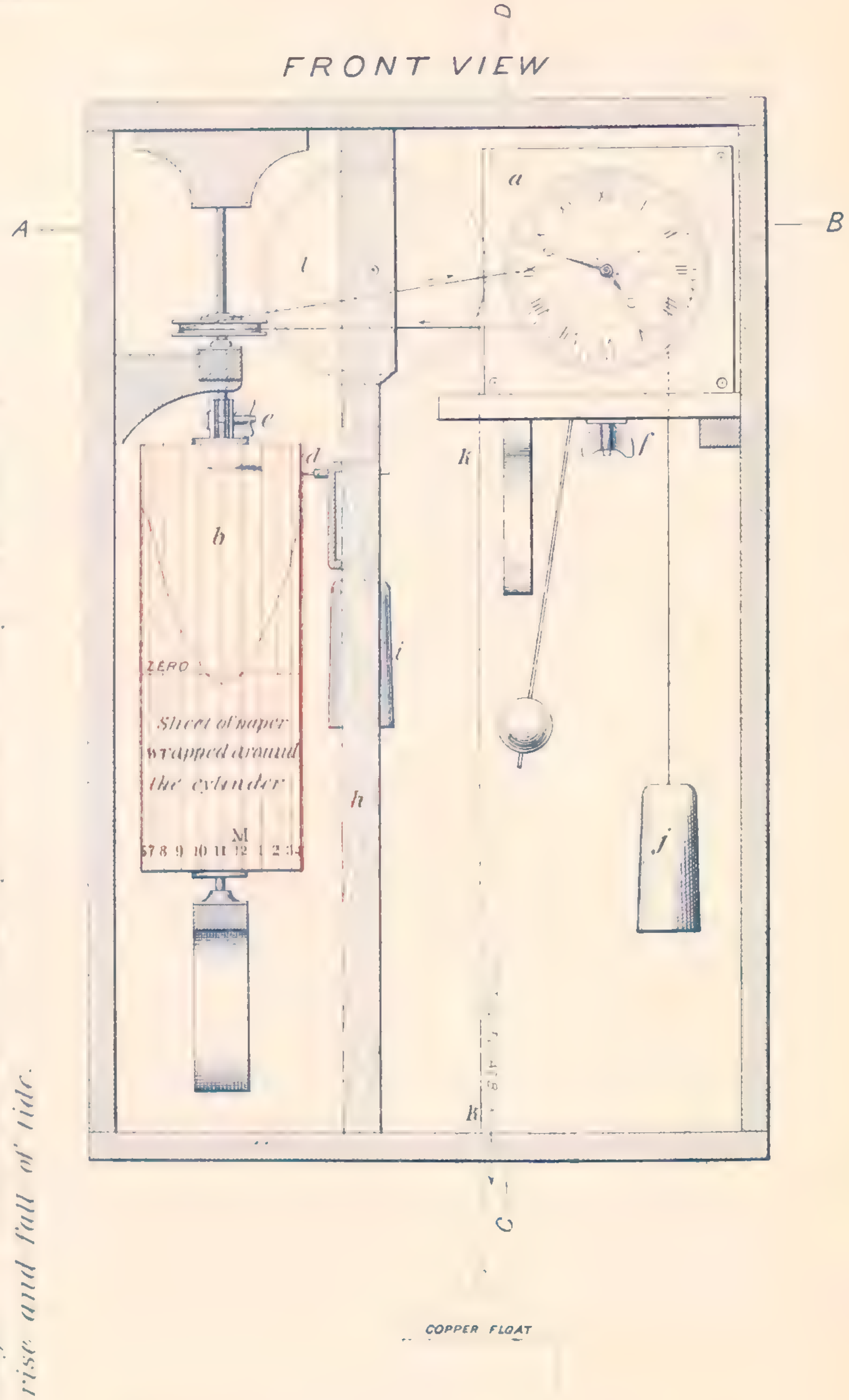
The quantity of rock to be excavated at these two points, for a navigable depth of 12 feet at low water, would be, approximately, 110,000 cubic yards, and for 20½ feet of water, 225,000 cubic yards, the width between the bulk-head lines being 200

AUTOMATIC TIDE REGISTER.

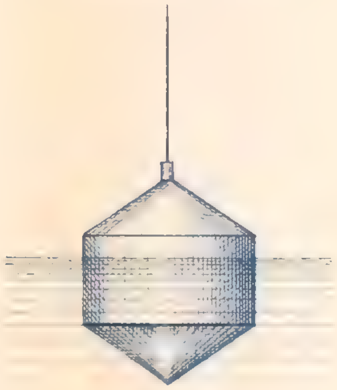
Designed by | **W. H. GRANT.**
Civil & Topographical Engineer.
1871.

Drawn by
F. GREIFFENBERG.

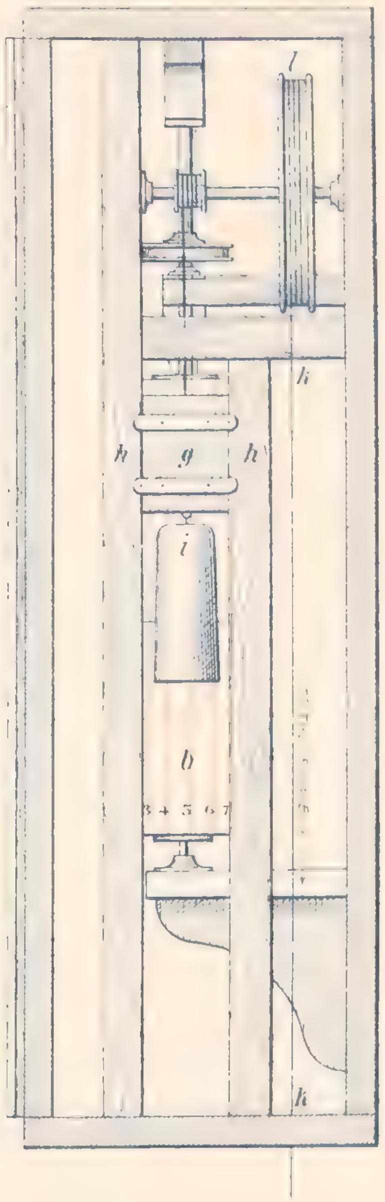
FRONT VIEW



COPPER FLOAT.

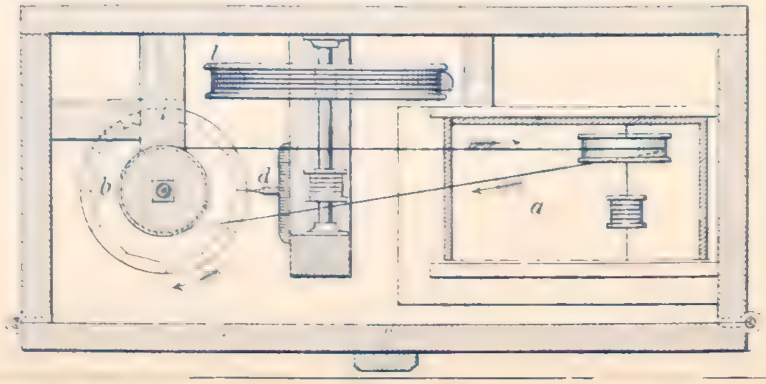


SECTION AT C.D.



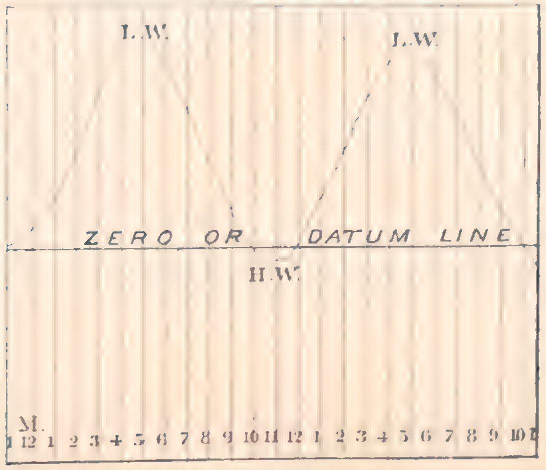
a. clock.   b. cylinder revolving in 24 hours.   d. recording pencil.
c. clamp screw for detaching cylinder.   f. thumb screw holding clock in position
g. pencil holder.   hh. guides to pencil holder.   i. weight to pencil holder.
j. clock weight.   k k. float cord winding and unwinding on pinion. l.
with rise and fall of tide.

SECTION AT A.B.

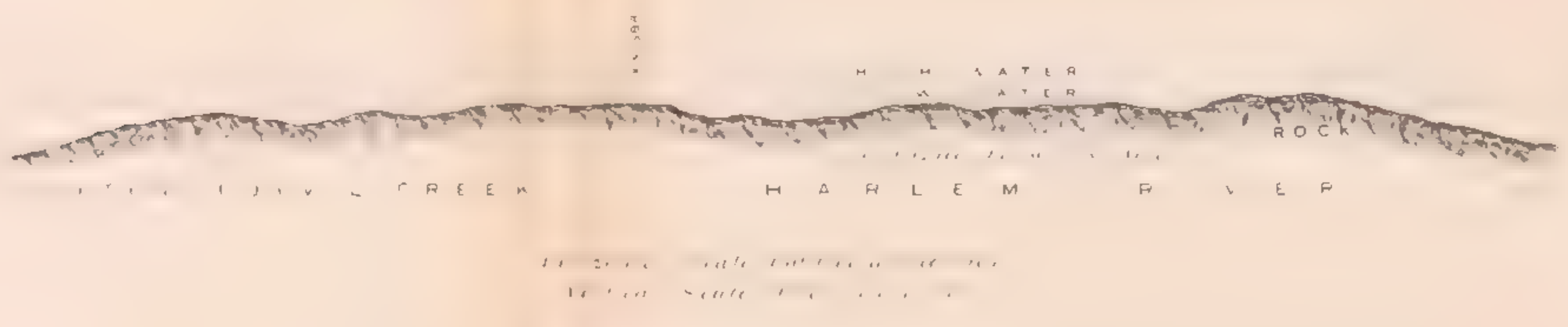


SCALE $\frac{1}{8}$

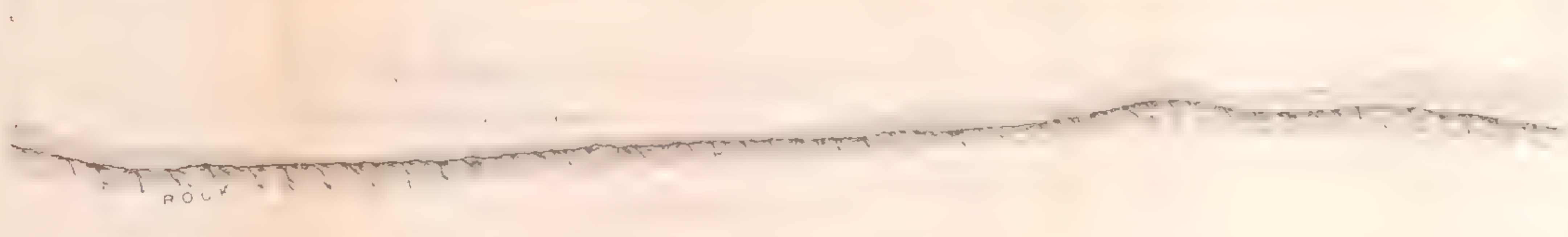
SHEET SHOWING RECORD OF TIDE FOR 24 HOURS.



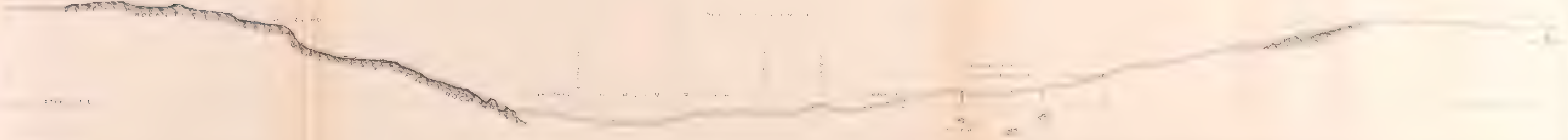
LONGITUDINAL SECTION IN CHANNEL OF HARLEM RIVER AT KINGSBRIDGE



CROSS SECTION OF HARLEM RIVER AT SITE OF PROPOSED TUNNEL AT HEAD OF SEVENTH AVENUE



CROSS SECTION OF HARLEM RIVER VALLEY AT SITE OF PROPOSED SUSPENSION BRIDGE 1800 FEET NORTH OF HIGHBRIDGE.



feet at Kingsbridge, and 400 feet at the head of Seventh avenue. The rock at this latter point is gneiss stratified nearly vertically: the rock at Kingsbridge is limestone, and would be much less expensive in removal.

The most economical mode of removing this latter rock would be in connection with the tunnel proposed at this point, as the two works would derive great advantage from being carried on together.

The cost of improving the navigation, throughout the entire channel, must be conjectural until soundings and tests are made of the material overlying the rock, to determine its quantity and character. It is not improbable that additional points of rock will be developed.

Gen. Newton, of the United States engineers, in charge of improvements in New York harbor, has estimated, on the part of the General Government, the cost of removing 2,950 cubic yards of rock and other obstructions, in that part of Harlem river east of Third avenue, to give a depth of 12 feet at low water, at $167,875.

The distance from Spuyten Duyvil on the Hudson, around by the Battery and the East river, to the mouth of Harlem river at the south end of Ward's Island, is twenty-two miles. The saving of distance, by vessels passing through the improved channel of the Harlem river, would be about thirteen and a-half miles.

The mean rise and fall of tides, as obtained by the use of automatic tide registers, during the months of September, October and November, in 1871, is, at the East river, 5.4 feet, and at the Hudson river, 3.6 feet. The mean difference of levels at the Hudson and East rivers, as obtained from 283 simultaneous observations, taken during the same period, was 14½ inches. It has been supposed that a larger difference of levels than this existed, between changes of tide, and that it could be made available, after the rock obstructions were removed, in scouring out the channel. Mean high water was found to be 9½ inches lower, and mean low water 12 inches higher, in the Hudson than in the East river.

The time of high water in the Hudson is one hour and ten minutes earlier than in the East river.

The surveys, which were in progress up to the beginning of the last year, with reference to the improvement of the navigation, and tunneling and bridging Harlem river, were suspended at that period for the want of funds. The principal work now remaining to be done, to perfect the necessary information in regard to the improvement of navigation, is the soundings of the bed of the river. The site for the tunnel, which has been located at the head of Seventh avenue, has been fully examined and developed by a series of borings, as also the site for the Suspension Bridge, about 1,800 feet north of the Croton High Bridge.

A site for a tunnel at Kingsbridge has been examined by borings to the rock, sufficient to determine its most favorable location. Other sites have had some attention, but remain to be further developed.

Plans have been prepared for the tunnel at Seventh avenue, but the question of the depth of water for the improved navigation of the river is still open, and this must govern some of the leading features of the structure and its approaches.

The importance of perfecting and increasing the facilities for crossing the Harlem river has been discussed for several years. But one bridge of a permanent and suitable character now exists—that at Third avenue; the others are inferior and perishable structures, needing frequent repairs or renewals at large expense.

The Third avenue bridge is at times inconveniently crowded by the increasing travel, the frequent openings of the draw for passing vessels tending to increase the difficulty, and to limit its capacity. The four existing bridges, such as they are, afford the only crossings, (exclusive of the Harlem Railroad bridge) for the whole length of the river.

The proportional number of bridges for such a distance would be, taking the city of London as an example, as bridges (including two tunnels) now exist over the Thames, twelve; and referring to the city of Paris and the existing bridges over the Seine, the number would be twenty-four. This affords an indication of the number of communications that may hereafter become necessary, by bridges over or tunnels under the Harlem river, and especially suggests the enquiry, whether, in the general progress of improvements and spread of population, the time has not arrived, when one or more such structures should be commenced, (requiring two to four years for completion), at the points where they will be apparently soonest needed. Assuming that future crossings will be required along the river, at distances averaging about half a mile apart, which is about a mean proportion of the distances between the river crossings of the cities of London and Paris, the conformation of the land is such, that three of these crossings may be established by means of suspension bridges, at an elevation sufficient to pass masted vessels; the others, say twelve in number, must be established, either by low bridges with draws, or by tunnels.

It will be many years, probably, before the whole number of crossings will become indispensably necessary, although it cannot be doubted that time is the only element of uncertainty in the case.

If one-half the assumed number should be constructed as draw-bridges, it would be sufficient to obstruct the free navigation of the river to an extent that can easily be seen would be extremely detrimental. This can be judged from the existing draw-bridges, with the limited business now done on the Harlem river. If all the future crossings, (exclusive of three suspension bridges, which may be practicable) should consist of draw-bridges, it may well be doubted, whether the obstructions to navigation, and the embarrassments to the land travel, which would result from the frequent use of the draws, would not neutralize the benefits which are anticipated from an expensive enlargement and improvement of the channel.

The results growing out of a crowded channel of navigation, crossed by draw-bridges, have been demonstrated within a few years past in the city of Chicago. The detention of vessels on the Chicago river, and the stoppages of the land travel, by reason of the draw-bridges, became so serious a public inconvenience in that city, that two tunnels have been constructed, and it is understood that others are contemplated.

The opinions of those who have given most attention to the subject, have settled upon the expediency of tunnels under the Harlem river, so far as they may be practicable, in preference to low bridges with draws.

To determine fully the practicability of tunnels, to the extent that seems desirable, it is necessary to settle the question as to the character and capacity of the improved navigation of the channel, and more especially the depth of water to be adopted.

Although the execution of this latter improvement may be deferred, the outline of its dimensions must be determined in advance of any tunnel work, for the reason that tunnels should be sunk to the least practical depth, in order to diminish their length, and afford easy ascents and descents of their approaches.

Under the most favorable circumstances of location of tunnels which have been examined, it is found that there is but little, if any, room to allow for contingencies in this respect. So far as the character of the navigation to be adopted may be governed by the question of cost, it is necessary, as I have before mentioned, to complete the hydrographical survey which has been commenced, and develop all the points which may have a bearing upon the most judicious plan. The survey has proceeded so far that not a very large amount of work is required to complete it. I would suggest that whenever funds are available for this object, the surveys be extended through Harlem Kills, between Randall's Island and the main land, to determine whether this route to the Sound may not prove more advantageous than that by way of the south end of Ward's Island.

The distance between the Hudson river and the Sound would be, by this route, eight miles, and would shorten the distance over the present route making the circuit of the island, sixteen miles; the actual gain being by the Harlem Kills channel, as compared with the existing Harlem river channel, by way of the south end of Ward's Island, two and a half miles.

THIRD DIVISION—*Westchester District.*

The topographical survey of this territory was completed during the last season. This survey, which was preliminary to the laying out of streets, avenues, &c., in the territory, has been in progress since 1869, under the several Acts of the Legislature of 1869, 1870, 1871 and 1872, and with the means which have been available, from year to year, from appropriations by the county of Westchester. The work has been carefully and accurately mapped, in a series of sections with the topography delineated, on a suitable scale for studying out and laying down the contemplated system of improvements.

A reduced map has been made, which accompanies this report, showing the extent, general topography, and boundaries of the district, together with a portion of the city of New York adjacent. This map also shows a small portion of the city of Yonkers, which, under the original law, was included in the territory to be surveyed.

The extent of the territory, together with some other information of a general character, is shown by the following statement :

Area of the Westchester territory south of the city of Yonkers, 12,317.32 acres, or	19¼ sq. miles.
Extreme length, north and south	7.6 miles.
Length of Water front	14. “
Extreme breadth, east and west	3.8 “
Area of low ground below a level of 40 feet above tide	4,058.93 acres.
Area above 40 and below 80 feet	3,311.28 “
Area above 80 and below 200 feet	4,628.48 “
Area above 200 feet	318.63 “

The most elevated point of land is 282 feet above tide.

Population	30,742
Assessed valuation,—real	$9,844,580
“ “ —personal	$248,500

For comparison, the corresponding items applying to Manhattan Island, are given as follows :

Area of Manhattan Island 13,463 acres, or	21 sq. miles.
Extreme length, north and south	13½ miles.
Extreme width, east and west	2¼ “
Length of water front	30½ “
Population in 1870	942,292
Assessed valuation,—real (1873)	$836,693,380
“ “ —personal (1873)	$292,447,643

The Westchester area is nearly equal to that of the city and county of New York ; the length of the water front is nearly one-half that of New York.

The topographical survey has been made from a system of parallel lines, having for a base the easterly line of Tenth avenue in the city of New York, with cross lines laid off at right angles to the Tenth avenue parallels; all of these lines having been produced with accuracy to the extremities of the district surveyed.

The progress made in laying out streets and avenues has been limited by the amount of funds supplied by Westchester county. The extent of work done of this character, up to the present date, is as follows:

New streets and avenues laid out, adopted by the Board, and filed.........	4½	miles.
New streets planned and submitted to the Board...........	20	"
New streets in a forward state of preparation............................	45	"

This work covers in all about 3,500 acres.

Owing to the failure of funds, a part of the work of laying down and monumenting streets, during the last season, was done at the expense of the adjacent property owners, who had previously graded a part of the streets, and desired to have them legally established sooner than could otherwise be done.

The property owners generally of the district, have expressed a strong desire for the early completion of the plans of improvement contemplated, and it would clearly be for their interest that it should be done in the shortest time practicable with work of this character; the provisions of the law, however, have been such, in reference to appropriations, as to prevent greater progress than has hitherto been made.

The necessity for completing the plans has been additionally enhanced, in consequence of the law prohibiting improvements by the local authorities during the progress of the surveys. This prohibition has held in check the opening and extending of communications, except a few which have been authorized by special laws, since 1869.

It would obviously be extremely detrimental to a wide range of public and private interests, if means cannot be devised for expediting the work, so far, at least, as to settle and establish the prominent lines of communication throughout the territory, and lay out, in harmony with them, plans of streets in the local districts, where most required.

The topographical survey and maps having been completed, the ground work is afforded, with all needed accuracy, for devising, without loss of time, the plans best adapted to the varying physical features of the territory, and to the present and prospective public interests. Considerable progress has already been made in this work, in the preparation of designs and studies of the ground, as has been previously stated.

The field work which will hereafter be required, will be of a different character from that which has heretofore been performed, and will consist, chiefly, of transferring to the ground the plans prepared in the office, and setting the necessary monuments to designate and preserve the lines.

By chapter 613 of the Laws of 1873, known as the Annexation Act, the Westchester territory becomes, on the 1st of January, 1874, a part of the city and county of New York, and the plans of improvements to be devised, will form a continuation or extension of the existing plan of the city of New York, prosecuted under municipal laws, and for a municipal object.

This unity of interests and change of relations, will render it more appropriate than heretofore, to study and apply a greater unity of treatment in the plans of the work. Local interests will merge more into the broad and general interests of the consolidated territory, and plans, liberally adapted to the benefit of the whole, will, doubtless, be regarded by all who exercise forethought in the matter, as more fitting and beneficial than those of a local or special character.

The enlarged city will have the following dimensions, population, &c.

Area 25,780 acres, or	40¼ sq. miles
Extreme length, north and south	16 miles.
Extreme breadth, east and west	5 "
Length of water front	44 "
Population	973,034
Assessed valuation, real	$846,537,660
" " --personal	$292,696,143

The length of water front is equal to $1\frac{1}{10}$ miles for each square mile of territory, a feature which gives great commercial advantage to the city as compared with other maritime cities; and affords also nearly unrivaled facilities for perfecting drainage, sewerage, and sanitary arrangements. In connection with these advantages the topography of the land is fortunately diversified for the various purposes of occupation: affording elevated and rolling districts for residences, and lower and more easily utilized ground for commercial and manufacturing pursuits.

The basis of the plan for laying out the Westchester territory, which was outlined in a former report (December 31st, 1872), I have found, as far as progress has since been made, to be adapted, about as nearly as it is practicable that a prearranged system of rules could be, to the varying circumstances and necessities of the work. The study of the topography of the ground, and the present and future requirements, local and general, opens a wide field and presents a diversity of questions to be considered and weighed at each successive step.

I mentioned, in the report referred to, the subject of parks and places as one that would require further consideration. In the preparation of a plan for the future development of the territory, which is now sparsely occupied, it will be a prudent exercise of foresight to study out, and set apart, ample areas of ground for public uses. The most suitable sites can now be selected, without encountering costly improvements or local obstacles, which in a few years will grow up and present serious embarrassments.

The following statistics have been procured to give some indications of the extent of grounds appropriate to this object.

The city of London has seventeen public parks and gardens, (two of which are suburban), containing in all 2,600 acres. This gives a proportion of one acre in parks to every twenty-eight acres of city area. In addition to the public parks there are large tracts of land, exterior to the city, belonging to different estates of the crown and nobility, which are used as parks, and are more or less accessible to the public, under restrictions. If these are taken into account, together with the numerous small open squares of the city, the proportion would be much greater than one acre to twenty-eight acres of city area.

The city of Paris has about 4,200 acres of parks and gardens within and immediately contiguous to the city, the larger areas of the Bois de Boulogne and Bois de Vincennes, being without the city. This gives the large proportion of one acre in parks to every $4\frac{6}{10}$ acres of city area.

The city of New York (Manhattan Island) has—

1 acre in parks and places to every				$11\frac{1}{3}$	acres	of city area.
Chicago	has	1	acre to about	11	"	"
St. Louis	"	1	" "	11	"	"
Philadelphia	"	1	" "	$45\frac{1}{3}$	"	"
Brooklyn	"	1	" "	$26\frac{1}{2}$	"	"

The existing proportion in New York, would give for parks and places in the new territory, 1,000 acres.

Comparing the areas of parks with the population, rather than with the areas of cities, gives the following results:

London has 1 acre of parks for every 1,313 inhabitants.
Paris " " " " 416 "
New York " " " 820 "

Estimating the population of the city of New York, as enlarged by annexation, at 2,500,000 at the beginning of the next century, and applying the present proportional area of parks to the population, gives 3,048 acres; deducting the existing parks and places, leaves for the new territory 1,864 acres.

According to the London ratio, the number of acres would be reduced to 716,* while the Paris proportion would require 4,800 acres.

Whatever may be the aggregate amount of land determined upon as appropriate for the several objects, of parks for recreation, health and amusement; sites for future public buildings and institutions, and for reservoirs for water supply, &c., it is essential that the ground should be selected, as far as practicable, as the work of laying out streets and avenues proceeds. This will enable a general harmony and fitness of arrangement to be studied and perfected in regard to all contemplated improvements, and will furthermore conduce greatly to ultimate economy.

A comparative view of the dimensions, population, density of population, and wealth, of the principal cities of this country and some of the older cities of the world, is given in the following table:

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* This gives too small a proportion for reasons before stated.

CITIES.	POPULATION.	AREA, SQUARE MILES.	POPULATION PER ACRE.	VALUATION.
London	3,415,000	117½	45.2	
Paris	1,950,500	30	101.2	
Pekin	1,648,814	26	99	
Yeddo	1,554,848	120	20.2	
Canton	1,236,000	3	643.5	
Constantinople	1,075,000	3⅛	537.5	
New York (with annexed territory)	973,034	40¼	37.3	$1,139.234,103
Berlin	828,013	20	64.6	
Philadelphia	674,022	120	8.78	515.515,958
St. Petersburgh	667,026	30	34.7	
Vienna	622,087	31¼	30.6	
Liverpool	507,567	12½	63.4	
Glasgow	479,227	9	82.2	
Madrid	475,785	5	148.6	
Naples	448,743	9	77.9	
Calcutta	430,000	8	83.9	
Brooklyn	396,099	25	23.5	
Birmingham	344,980	27½	19.5	
Dublin	319,985	6	83.2	
St. Louis	310,864	52.7	9.2	
Chicago	298,977	34½	13.5	223,634,600
Baltimore	267,354	4	104.4	
Boston	250,526	15½	25.3	493,573,700
Cincinnati	216,239	6½	52	180,361,932
Edinburgh	201,728	4	78.8	
New Orleans	191,418	8	31.5	
San Francisco	149,473	36	6.4	99,684,821
Washington	109,199	11¼	13.6	62,476,098
Newark	105,059	5	32.8	87,000,000

The growing importance of communications, by bridges or tunnels, between the two portions of territory separated by the Harlem river, which I have before referred to, will be further illustrated by the following:

TABLE *of Bridges, Tunnels, &c.*

CITIES.	NO. OF BRIDGES.	RIVERS.	EXTREME LENGTH OF RIVER BRIDGED.	AVERAGE DISTANCE APART OF BRIDGES.	LEAST DISTANCE APART OF BRIDGES.	GREATEST DISTANCE APART OF BRIDGES.
			Feet.	Feet.	Feet.	Feet.
Paris	26	Seine	39,000	1,500	400	4,700
London	18*	Thames	56,700	3,355	500	9,700
Vienna	7	Danube	12,200	2,030	950	3,250
Florence	6	Arno	10,000	2,000	950	1,200
Dublin	9	Liffey	11,700	1,460	780	3,600
Berlin	12	Spree	25,080	1,180	250	5,940
Dresden	2	Elbe	2,500	2,500	....	..
Moscow	4	Moscow	13,800	4,600	2,850	6,600
St. Petersburgh	6	Great Neva	30,000	5,000	4,200	10,500

* Includes two tunnels.

Respectfully submitted,

WM. H. GRANT,

C. & T. Engr.

APPENDIX F.

REPORT

OF THE

CAPTAIN OF POLICE.

REPORT OF THE CAPTAIN OF POLICE.

DEPARTMENT OF PUBLIC PARKS,
BUREAU OF POLICE,
NEW YORK, 31st March, 1874.

SALEM H. WALES, ESQ.,
President of the Department of Public Parks:

SIR,—Conformably with your directions, I herewith submit statistics of arrests, lost children and of accidents on the Central Park, for the years of 1872 and 1873.

The whole number of arrests made in 1872 were nearly two to one in comparison with the arrests of 1873, and the greatest variation in that respect appertains to the Central Park, as shown in the following table:

	1872.	1873.
Assault and Battery	10	5
Disorderly Conduct	301	152
Fast Driving and Riding	28	14
Intoxication	109	134
Insanity	21	1
Picking Pockets		11
Thieving	23	11
Vagrancy	27	13
	609	341
Arrested on Central Park	367	150
Arrested on other City Parks	242	191

These were disposed of as follows:

Committed for Examination	85	32
Committed for Ten Days	108	89
Committed for Five Days	3	
Committed to Blackwell's Island	50	26
Discharged	97	60

Fined by Magistrate $15	1	..
Fined by Magistrate $10 each	37	22
Fined by Magistrate $5 each	2	..
Fined by Magistrate $3	..	1
Fined by Magistrate $2 each	..	2
Let go at Station	194	74
Put under Bonds	32	32

Lost children that have been returned by park-keepers to their parents on the Parks, taken home or to the Central Office of the Municipal Police Department, numbered 53 in 1872, and 75 in 1873.

There were 91 cases of horses running away on the Central Park during the year of 1872, and 54 during 1873.

Of incidental collisions and breaking down of vehicles collectively, there were 49 occurrences in 1872, and 62 in 1873.

In the Police organization, a reduction in the number of men was made during the years of 1872 and 1873. The organization is nominally composed of "park-keepers" and "gate-keepers," which are uniformed, numbering 84 men in the aggregate, and which is 65 men less than were employed in 1871, when the force numbered 149 men.

Of the present force 9 men have been assigned to duty on the smaller City Parks, and 75 men, including 25 gate-keepers, are performing duty on the Central Park.

In consideration of the extent of territory to be guarded, and on account of the large numbers of people that visit the Parks, an addition to the present force of 14 per cent. would effect a more thorough provision, and thereby, with the general efficiency of the force now existing, under a practical distribution as to utility, greater satisfaction may be obtained.

Respectfully,

HENRY KOSTER,

Captain.

APPENDIX G.

STATEMENT

OF

GIFTS, DEVISES AND BEQUESTS RECEIVED, OTHER
THAN THOSE ACKNOWLEDGED IN THE
REPORT OF THE DIRECTOR OF
THE MENAGERIE.

STATEMENT

In detail of the Gifts, Devises and Bequests, other than those acknowledged in the Report of the Director of the Menagerie, received from May 31st, 1872, to December 31st, 1873, and the names of the persons by whom the same have been so given, devised or bequeathed.

MISCELLANEOUS.

1872.

April 19. Mr. Andrew R. Leggatt, New York City, 1 lot Indian curiosities.

" 26. Mrs. W. W. Havell, Water Valley, Miss., 1 selection Snakes in alcohol.

May 23. Dr. Morsely, New York City, specimen Tattoo Skin.

" 30. Mr. C. B. Hillhouse, New York City, 1 collection Birds' Eggs.

July 29. Mr. Joseph Cousin, Greenpoint, N. Y., 1 piece Coral.

November 11. Miss C. C. Talman, New York City, 1 bust of Abraham Lincoln and pedestal for the same.

January 9. Mr. George Winter, New York City, 1 stuffed Owl.

February 24. Mr. F. S. Webster, Troy, N. Y., 1 prepared specimen of Red Fox.

May 13. Mr. Jos. H. Mandeville, Goshen, N. Y., 2 dead specimens Bittern.

1872.

June 3. Mr. H. B. Plant, New York City, Vertebrae and Jaw of a Shark.

August 26. George Bayles, M. D., New York City, 1 American Horned Fish, in Alcohol.

BOTANICAL.

1872.

January 24. Mr. W. O. McDonald, New York City, package Seed Royal Lily of India. *Nelumbium Speciosum.*

February 12. Mr. Leonard Jacob, Mamaroneck, N. Y., 4 packages Seeds.

" 13. Mr. Henry Herbert, New York City, 25 Plants.

April 15. Prof. Robert Demcker, New York City; 12 species European Ferns, 12 species Alpine and Herbaceous Plants, 6 species New Holland Plants, 25 species Bedding Plants, 50 Succulent Plants.

August 17. Mr. Joseph Hanserd, Columbus, Ga., 1 Cotton Plant.

October 15. S. L. M. Barlow, New York City, 1 large Ficus Elastica, 1 Pandamus Utilis, 1 Pittosporum Tobira, 1 Musa Sapientum, 1 Mexican Palm, 1 Podocarpus Nerifolium.

December 6. Mr. Alfred Pell, New York City, 1 Package Seeds (Primula Japonica).

1873.

January 27. Prof. Robert Demcker, New York City, 245 packages Seeds of rare Greenhouse, Hot-house and Hardy Perennial Plants; 150 Tulip Bulbs,

1873.

in 9 botanical sorts; 100 Narcissus, in 11 botanical species; 250 Crocus, in 15 botanical species; 10 specimens of Bromeliaceas, 5 Limodorum Tankervillæ, 50 species Sedum, Sempervivum, Crassula Epiphyllum and 4 varieties of Echeveria; Lomaria Gibba, 12 species hardy Perennial Plants.

March 28. Mrs. Kate Lefferson, New York City, seeds of Ohio Benanch, or Paw Paw.

April 2. A. Stephani & Co., New York City, 12 cases various Flower Bulbs.

June 7. Mr. F. E. Matthew —— 1 package Thistle Seed.

" 16. Prof. Robert Demcker, New York City, 500 packages Seeds from various countries; 500 packages Seeds of rare Plants, 200 packages Seeds Tropical Ferns, 75 packages Seeds Cucurbitacea, 125 packages Seeds Ornamental Grasses.

September 27. 12 packages rare East India Seeds.

November 5. Mr. C. Ludmann, New York City, 1 Agave, 1 Yucca and 2 Cactus.

ANIMALS.

1872.

February 1. Mr. P. J. Faye, New York City, 1 Opossum.

" 13. Master H. Steinhardt, New York City, 1 Rabbit.

" 17. Masters Jesse, David and Arthur Dovale, Inwood on the Hudson, 1 Pig with eight feet.

April 1st. Master Thornton N. Motley, New York City, 1 Squirrel Monkey.

1872.

April 15. Richard E. Kunze, M. D., New York City, 1 Salamander.

" 17. Mr. T. D. McGaffrey, New York City, 1 Squirrel.

" 19. Mrs. Ann Monteith, New York City, 1 Robin.

" 25. Mrs. E. B. Seelye, New York City, 1 Setter Dog.

May 4. Donor not known, 1 White Owl.

" 6. Miss Bell M. Hall, New York City, 1 Rabbit.

" 10. Mr. W. S. Bigelow, Boston, Mass., 9 Wild Turkey Eggs.

" 11. Sergt. M. R. Beam, Central Park Police, 1 White Turkey.

" 14. Mr. Jno. J. Pollock, New York City, 1 Turtle.

June 21. O. H. Richley, M. D., New York City, 1 pair Lop-eared Rabbits.

July 12. Mr. Benj. Haiens, Elizabeth, N. J., 1 Alligator.

" 14. Mr. George J. Wicks, Brooklyn, N. Y., 1 Java Monkey.

September 7. Mr. E. R. Knapp, New York City, 1 Rain Snake.

October 1. Mrs. Fowler, New York City, 2 Sea Gulls.

" 3. Miss Matilda A. Brownell, New York City, 2 Pigeons.

" 8. Mr. Wm. H. Fletcher, New York City, 1 Wild Drake.

" 15. Mr. Fred Emmons, New York City, 1 Marmoset.

" 28. Mr. Francis Kendrich, New York City, 1 Bantam Cock.

" 28. Mr. Victor Meyer, New York City, 4 small Alligators.

1872.

October 28. Mr. Samuel Hatch, New York City, 1 Red Fox.

November 1. Master James F. Mahon, New York City, 1 young Owl.

“ 28. Donor unknown, 1 Black Bear.

“ 28. Mr. Henry Reiche, New York City, 9 English Hares.

December 2. Mr. Serrall A. Dodge, New York City, 1 Horned Owl.

“ 16. Mr. Patrick Fitzpatrick, New York City, 1 Fowl.

1873.

January 27. Mr. F. Van Benschoten, New York City, 1 Rabbit.

“ 27. Sml. W. Francis, M. D., Newport, R. I., 1 Slug.

February 24. Mr. John O'Shaughnessey, New York City, 1 Rabbit.

March 28. C. B. Holman, M. D., Troy Ala., 1 Pine Lizard.

“ 28. Master C. P. Buchanan, New York City, 1 Rabbit.

May 13. Misses Emma and Jennie Beach, New York City, 2 Pea Fowls.

“ 13. Mr. Charles Shultz, New York City, 1 Red-breasted Mergaweer.

“ 19. Mrs. Sarah M. Mallory, New York City, 1 Spotted Deer.

“ 21. Mr. T. R. Proctor, Utica, New York, 1 Red Deer.

June 18. R. E. Kunze, M. D., New York City, 12 Spotted Tortoises, 2 Painted Tortoises, 2 Muhlenberge Tortoises.

“ 30. Mr. Geo. Bapter, Danville, Vt., 2 Goshawk Nestlings.

1873.

July 22. Master Thomas Lesnan, New York City, 1 King Bird.

August 7. Mr. T. G. Guirmaraes, New York City, 1 Tapir.

" 15. R. E. Kunze, M. D., New York City, 22 Painted Turtles.

" 25. Mr. Geo. E. Stillwell, New York City, 1 Woodchuck.

September 11. Mr. R. E. Kunze, New York City, 10 Painted Turtles.

" 21. Mr. Geo. Bing, Rochester, N. Y., 1 Pea Fowl.

November 1. Master Merrit L. Stewart, New York City, 14 Box Turtles.

APPENDIX H.

STATISTICAL TABLES,

COMPILED FROM THE GATE-KEEPERS' RETURNS

OF THE

NUMBER OF VISITORS

ENTERING THE CENTRAL PARK.

TABLE *showing the Number of Visits to the Central Park, by each Gate, for each Month during the Year* 1872.

ON FOOT.

1872.	Scholar's.	Children's.	Inventor's.	Miner's.	Engineer's.	Artist's.	Artisan's.	Merchant's.	Woman's.	All Saints'.	Boy's.	Farmer's.	Totals.
January..................	146,481	23,942	22,984	6,874	[illegible]	[illegible]	45,605	[illegible]	6,765	[illegible]	[illegible]	[illegible]	[illegible]
February..................	[illegible]	21,376	[illegible]	11,447	[illegible]	[illegible]	[illegible]	41,791	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
March..................	77,574	17,920	7,409	8,853	[illegible]	[illegible]	10,912	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
April..................	[illegible]	35,692	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	112	[illegible]	[illegible]	[illegible]
May..................	[illegible]	42,001	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6,110	[illegible]	[illegible]	[illegible]	[illegible]
June..................	[illegible]	[illegible]	[illegible]	[illegible]	7,143	[illegible]	[illegible]	148,411	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
July..................	[illegible]	70,703	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	....	[illegible]	[illegible]	[illegible]
August..................	[illegible]	[illegible]	[illegible]	29,714	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
September..................	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8,254	[illegible]	[illegible]	[illegible]	[illegible]
October..................	142,148	[illegible]	[illegible]	15,851	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	....	[illegible]	[illegible]	[illegible]
November..................	85,780	[illegible]	[illegible]	12,025	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	....	[illegible]	[illegible]	[illegible]
December..................	[illegible]	[illegible]	21,758	[illegible]	2,744	[illegible]	[illegible]	[illegible]	[illegible]	....	[illegible]	[illegible]	[illegible]
Totals..................	[illegible]	[illegible]	[illegible]	224,105	[illegible]	870,111	[illegible]	[illegible]	78,310	[illegible]	[illegible]	[illegible]	[illegible]

TABLE *showing the Number of Visits to the Central Park, by each Gate, for each Month during the Year* 1872 *(Continued).*

ON HORSEBACK.

1872.	Scholar's.	Inventor's.	Miner's.	Engineer's.	Merchant's.	Woman's.	All Saints'.	Boy's.	Farmer's.	TOTALS.
January	2,388	151	26	277	921	16	7	....	589	4,375
February	1,890	150	32	413	839	14	53	47	690	4,143
March	2,065	55	47	268	1,708	117	60	61	307	4,688
April	4,990	234	172	528	1,081	41	6	85	661	7,798
May	5,698	692	284	618	1,231	109	27	73	1,750	10,482
June	3,822	217	254	292	638	80	15	341	746	6,405
July	1,575	179	140	320	457	91	....	82	543	3,363
August	1,292	297	165	390	3,754	465	....	57	271	6,691
September	2,913	205	317	474	1,581	103	....	103	1,014	6,720
October	2,873	166	96	202	1,037	66	....	146	603	5,189
November	1,753	44	64	273	700	20	....	36	313	3,302
December	1,178	64	192	130	546	22	....	19	209	2,360
Totals	32,437	2,460	1,789	4,191	14,592	1,114	168	1,060	7,705	65,516

TABLE *showing the Number of Visits to the Central Park, by each Gate, for each Month during the Year 1872—(Continued).*

CARRIAGES.

1872.	Scholar's.	Inventor's.	Miner's.	Engineer's.	Merchant's.	Woman's.	All Saints'.	Boys'.	Farmer's.	Totals.
January	92,247	3,746	1,306	11,017	[illegible]	211	98	41	27,536	155,687
February	34,175	3,040	1,86[illegible]	[illegible],465	[illegible]	143	65	118	18,733	74,7[illegible]
March	56,558	1,092	1,67[illegible]	8,061	[illegible],455	73	[illegible]	411	[illegible]	133,9[illegible]
April	60,524	6,734	3,171	1[illegible],209	10,72[illegible]	124	[illegible]	797	[illegible]	134,85[illegible]
May	116,779	6,641	3,092	14,757	10,14[illegible]	545	208	1,445	[illegible],852	147,05[illegible]
June	[illegible]	4,029	4,316	10,097	14,[illegible]51	433	470	1,767	[illegible]	[illegible]
July	49,417	3,022	3,591	1[illegible],410	[illegible]	570	....	1,803	40,[illegible]	124,[illegible]
August	42,032	3,045	2,910	[illegible],772	14,603	1,632	[illegible]	2,020	[illegible],641	11[illegible]
September	51,015	3,214	3,462	1[illegible],672	14,03[illegible]	603	11	1,8[illegible]	[illegible],[illegible]04	14[illegible],17[illegible]
October	40,224	2,680	2,404	1[illegible],0[illegible]	11,32[illegible]	513	....	1,575	[illegible]	114,014
November	[illegible],636	1,82[illegible]	1,335	7,035	3,699	771	....	777	[illegible]	6[illegible],71[illegible]
December	15,341	1,057	1,061	5,54[illegible]	4,[illegible]7	[illegible]	....	341	17,603	53,6[illegible]
Total	604,471	42,069	39,783	[illegible]	14[illegible],[illegible]6	5,261	1,7[illegible]	14,[illegible]	[illegible]	*1,567,311

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* Estimating three persons in each carriage, the total number of persons entering in carriages was 4,701,933.

TABLE *showing the Number of Visits to the Central Park, by each Gate, for each Month during the Year* 1872 (*Continued*).

SLEIGHS.

1872.	Scholar's.	Inventor's.	Miner's.	Engineer's.	Merchant's.	Woman's.	All Saints'.	Boy's.	Farmer's.	Totals.
January							2			2
February	6,022	190	170	1,074	668	15	5	2	2,859	11,428
March	4	6	17		4			1	63	95
April										
May										
June										
July										
August										
September										
October										
November	170	[illegible]	4	[illegible]	6				278	702
December	9,142	[illegible]	[illegible]	8,706	3,744	8		159	24,944	47,910
Totals	16,308	316	738	10,050	4,422	23	7	162	27,524	*60,139

* Estimating three persons in each sleigh, the total number entering in sleighs was 180,417.

Table showing the Number of Visits to the Central Park, on Sundays, during the Year 1872.

1872.	On Foot.	On Horseback.	In Carriages.	In Sleighs.	Totals.
Jan. 7th	38,826	71	7,494	....	46,391
" 13th	18,452	140	18,939	....	37,531
" 21st	42,949	223	32,181	....	75,353
" 28th	24,873	78	8,214	....	33,165
Feb. 4th	25,927	21	1,392	19,689	47,029
" 11th	17,730	112	9,765	....	27,607
" 18th	46,485	138	14,283	....	60,906
" 25th	22,941	150	11,262	....	34,353
March 3d	16,000	100	24,981	....	41,081
" 10th	730	4	984	....	1,718
" 17th	3,234	66	4,146	....	7,446
" 24th	27,703	341	38,625	....	66,669
" 31st	661	12	945	....	1,618
Apr. 7th	1,241	2	795	....	2,038
" 14th	61,876	248	22,929	....	85,053
" 21st	76,256	304	19,557	....	96,177
" 28th	83,013	289	31,110	....	114,412
May 5th	62,941	293	42,696	....	105,930
" 12th	75,918	374	54,968	....	131,261
" 19th	28,950	77	13,452	....	42,479
" 26th	102,168	579	32,364	....	135,111
June 2d	86,853	656	38,562	....	126,071
" 9th	91,702	599	35,571	....	127,872
" 16th	98,764	289	22,410	....	121,463
" 23d	81,830	234	28,350	....	110,414
" 30th	72,956	172	18,579	....	91,707
July 7th	65,063	184	13,953	....	79,200
" 14th	87,669	153	24,853	....	112,680

Table *showing the Number of Visits to the Central Park, on Sundays, during the Year* 1872.—*(Continued.)*

1872.	On Foot.	On Horseback.	In Carriages.	In Sleighs.	Totals.
July 21st............	38,573	101	15,297	....	53,971
" 28th............	62,163	125	17,538	....	79,826
Aug. 4th............	36,365	263	11,388	....	48,016
" 11th............	60,882	321	18,552	....	79,755
" 18th............	62,169	188	13,629	....	75,986
" 25th............	68,693	224	15,375	....	84,292
Sept. 1st............	54,318	152	19,245	....	73,715
" 8th............	52,640	147	26,715	....	79,502
" 15th............	33,674	622	19,185	....	53,481
" 22d............	63,522	264	30,609	....	94,395
" 29th............	41,636	317	19,029	....	60,982
Oct. 6th............	50,800	387	15,999	....	67,186
" 13th............	34,473	216	17,907	....	52,596
" 20th............	46,743	248	19,245	....	66,236
" 27th............	42,805	28	1,716	....	44,549
Nov. 3d............	2,433	1	330	....	2,764
" 10th............	34,404	134	19,515	....	54,053
" 17th............	16,442	94	11,925	....	28,461
" 24th............	31,584	162	13,095	....	44,841
Dec. 1st............	8,963	37	3,672	5,526	18,198
" 8th............	3,276	97	4,611	....	7,984
" 15th............	18,178	171	18,180	....	36,529
" 22d............	31,395	11	3,492	5,772	40,670
" 29th............	43,624	31	369	31,089	75,113
Totals..........	2,306,766	10,310	906,684	62,076	3,285,836

Table *showing the Number of Visits to Central Park on Concert Days during the Year* 1872.

1872.	On Foot.	On Horseback.	In Carriages.	Totals.
May 18th........	21,697	581	23,631	45,909
" 25th........	37,700	521	25,737	63,958
June 1st...........	45,600	377	55,038	101,015
" 8th..........	41,254	227	37,125	78,606
" 15th..........	52,168	300	48,489	100,957
" 22d..........	40,869	183	18,999	60,051
" 29th..........	25,177	142	13,719	39,038
July 4th..........	31,678	98	5,496	37,272
" 6th..........	40,412	105	15,975	56,492
" 13th..........	26,899	127	15,459	42,485
" 20th..........	28,971	120	15,039	44,130
" 27th..........	36,078	98	14,331	50,507
Aug. 3d..........	29,762	301	12,402	42,465
" 10th..........	40,298	281	13,272	53,851
" 17th..........	26,064	241	12,828	39,133
" 24th..........	31,918	259	12,582	44,759
" 31st..........	20,714	156	12,570	33,440
Sept. 7th..........	29,958	193	17,319	47,470
" 14th..........	24,193	376	20,913	45,482
" 21st..........	32,515	250	23,172	55,937
" 28th..........	31,117	286	22,818	54,221
Oct. 5th..........	17,216	197	15,213	32,626
" 12th..........	20,091	277	25,641	46,009
" 19th..........	13,311	285	17,433	31,029
Nov. 2d..........	17,196	61	4,602	21,859
25 days.......	762,766	6,042	499,899	1,268,707

TABLE *showing the Largest and Smallest Number of Visits to the Park, in Winter and Summer respectively, in the Year* 1872.

IN WINTER (JANUARY, FEBRUARY, MARCH AND DECEMBER.)

The largest number of visitors, on foot, on any one day, was	46,485	on Sunday, 18th February.
The smallest number of visitors, on foot, on any one day, was	81	on Thursday, 26th December.
The largest number of visitors, on horseback, on any one day, was	406	on Thursday, 28th March.
The smallest number of visitors, on horseback, on any one day, was	0	on Thursday, 26th December.
The largest number of visitors, in carriages, on any one day, was	38,625	on Sunday, 24th March.
The smallest number of visitors, in carriages, on any one day, was	75	on Thursday, 26th December.
The largest number of visitors, in sleighs, on any one day, was	31,089	on Sunday, 29th December.
The smallest number of visitors, in sleighs, on any one day, was	60	on Tuesday, 6th February.
The largest number of visitors, of all classes, on any one day, was	75,353	on Sunday, 21st January.
The smallest number of visitors, of all classes, on any one day, was	309	on Thursday, 26th December.

IN SUMMER (APRIL TO NOVEMBER, INCLUSIVE.)

The largest number of visitors, on foot, on any one day, was	102,168	on Sunday, 26th May.
The smallest number of visitors, on foot, on any one day, was	873	on Tuesday, 26th November.
The largest number of visitors, on horseback, on any one day, was	656	on Sunday, 2d June.
The smallest number of visitors, on horseback, on any one day, was	1	on Sunday 3d November.
The largest number of visitors, in carriages, on any one day, was	55,038	on Saturday, 1st June.
The smallest number of visitors, in carriages, on any one day, was	324	on Tuesday, 12th November.
The largest number of visitors, of all classes, on any one day, was	135,111	on Sunday, 26th May.
The smallest number of visitors, of all classes, on any one day, was	1,268	on Tuesday, 12th November.

The total number of visits, in carriages, during the year, was	4,701,933
The total number of visits, in sleighs, during the year, was	180,417
The total number of visits, on horseback, during the year, was	65,516
The total number of visits, on foot, during the year, was	5,925,973
	10,873,839

The average daily number of visits, of all classes, during the year, was	29,792
The proportion of foot visits to the whole number, was	54½ in 100

TABLE *showing the Number of Visits to the Central Park, by each Gate, for each Month during the Year* 1873.

ON FOOT.

1873.	Scholar's.	Children's.	Inventor's.	Miner's.	Engineer's.	Girl's.	Pioneer's.	Artist's.	Artisan's.	Merchant's.	Woman's.	Hunter's.	Mariner's.	All Saints'.	Boy's.	Farmer's.	Warrior's.	Stranger's.	Total for the Month.
January	143,623	21,363	22,416	15,163	1,728	....	......	54,026	37,326	46,515	27,975	....	....	187	2,550	5,518	......	......	[illegible]
February	84,674	23,780	12,614	9,638	1,744	....	......	38,501	21,822	35,088	4,948	....	....	......	370	[illegible]	......	......	[illegible]
March	91,681	24,812	13,381	15,114	5,130	....	......	45,292	28,752	30,343	6,626	....	....	......	643	3,561	......	[illegible]	[illegible]
April	131,211	37,340	10,204	14,088	9,162	....	......	45,381	31,578	63,850	6,376	....	....	......	[illegible]	[illegible]	......	......	[illegible]
May	161,128	48,803	22,130	15,674	8,407	....	......	67,651	64,485	62,380	8,048	....	....	101	[illegible]	[illegible]	.....	.....	[illegible]
June	203,755	64,753	28,411	10,854	9,870	....	3,880	98,440	125,007	87,313	7,248	197	8	[illegible]	[illegible]	[illegible]	94	......	[illegible]
July	131,747	40,785	23,030	21,085	8,253	....	......	65,103	92,620	87,818	22,445	....	....	316	2,355	[illegible]	[illegible]	......	[illegible]
August	201,135	50,874	21,806	18,320	8,230	....	......	116,048	118,420	111,637	7,445	....	....	[illegible]	3,114	[illegible]	[illegible]	......	[illegible]
September	159,890	51,750	20,348	19,234	7,510	....	......	72,094	72,130	93,449	8,407	....	....	[illegible]	[illegible]	[illegible]	548	......	[illegible]
October	150,109	55,830	17,920	11,248	7,057	....	......	67,113	40,250	73,874	6,377	....	....	[illegible]	[illegible]	[illegible]	343	......	[illegible]
November	57,506	35,025	9,810	8,080	8,057	....	......	31,798	24,583	25,368	6,300	....	25	1,153	[illegible]	[illegible]	......	......	[illegible]
December	43,248	22,040	8,018	10,873	3,878	69	2,922	11,941	10,098	12,214	2,350	14	271	[illegible]	[illegible]	[illegible]	......	......	[illegible]
Total for the year	1,550,278	487,754	210,004	179,280	79,061	69	6,802	713,487	667,980	738,858	114,071	211	304	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TABLE *showing the Number of Visits to the Central Park, by each Gate, for each Month during the Year* 1873. *(Continued.)*

ON HORSEBACK.

1873.	Scholars'.	Inventor's.	Miner's.	Engineer's.	Girl's.	Merchant's.	Woman's.	Mariner's.	All Saints'.	Boy's.	Farmer's.	Warrior's.	TOTAL FOR MONTH.
January	688	5	33	356	....	104	81	....	2	32	152	....	1,443
February	434	10	31	218	....	291	6	....	....	27	331	....	1,348
March	1,426	54	73	673	....	741	4	....	....	84	474	168	3,697
April	4,004	63	125	457	35	1,321	18	....	155	1,036	266	....	7,480
May	5,831	89	104	317	....	840	22	31	207	2,469	454	....	10,424
June	4,505	129	100	266	22	580	78	....	19	120	769	....	6,054
July	1,861	94	115	212	....	441	57	....	13	121	451	....	3,365
August	1,482	96	121	238	....	418	94	....	18	111	442	....	3,020
September	1,924	84	104	272	1	438	82	....	22	121	534	....	3,582
October	4,744	120	129	307	....	664	76	5	5	90	940	109	7,189
November	2,996	129	83	357	....	507	65	....	37	117	1,040	....	5,331
December	1,448	95	59	230	....	597	56	....	42	26	869	....	3,422
Total for the year	31,343	965	1,197	3,812	58	7,032	639	36	520	4,354	6,722	277	56,955

TABLE *showing the Number of Visits to the Central Park, by each Gate, for each Month during the Year* 1873.—*(Continued.)*

CARRIAGES.

1873.	Scholar's.	Inventor's.	Miner's.	Engineer's.	Merchant's.	Woman's.	Mariner's.	All Saints'.	Boy's.	Farmer's.	Warrior's.	TOTAL FOR MONTH.
January	4,186	516	161	4,050	8,519	51	....	....	207	9,248	....	21,003
February	6,853	423	393	4,447	3,414	90	....	....	538	15,068	....	31,276
March	19,550	1,367	1,496	14,171	6,363	18	....	....	904	35,521	....	79,882
April	44,190	2,072	3,333	13,822	13,055	169	7	....	1,967	51,873	....	130,548
May	52,923	2,405	2,700	9,787	19,091	303	....	20	2,501	48,119	2,090	133,003
June	63,467	2,812	3,061	14,417	21,530	431	....	176	3,341	58,095	5,250	172,023
July	43,881	2,404	2,242	10,127	17,071	1,030	....	120	2,515	40,802	....	120,324
August	47,702	2,075	2,102	9,103	12,907	1,260	....	96	2,05[illegible]	47,708	....	125,788
September	69,021	2,360	2,290	11,208	15,052	1,317	....	223	2,847	50,130	....	154,004
October	114,600	2,679	2,496	11,304	12,716	2,141	27	7,243	676	129,877	600	294,748
November	49,453	1,388	1,621	13,800	6,099	1,857	....	205	672	50,029	....	134,034
December	23,840	1,371	1,759	8,140	8,734	1,150	....	175	304	40,508	....	80,410
Total for the year	539,537	22,338	23,843	124,802	131,574	[illegible]	34	[illegible]	18,416	580,641	7,940	*1,474,630

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* Estimating three persons in each carriage, the total number entering in carriages was 4,42[illegible].

TABLE *showing the Number of Visits to the Central Park, by each Gate, for each Month, during the Year* 1873.—*(Continued.)*

SLEIGHS.

1873.	Scholar's.	Inventor's.	Miner's.	Engineer's.	Merchant's.	Woman's.	All Saints'.	Boy's.	Farmer's.	TOTAL FOR MONTH.
January	55,503	2,448	906	18,743	12,667	70	....	672	88,218	180,227
February	11,320	620	705	6,862	5,196	51	....	310	24,069	49,133
March	....	....	....	....	....	....	....	....	....	....
April	....	....	....	....	....	....	....	....	....	....
May	....	....	....	....	....	....	....	....	....	....
June	....	....	....	....	....	....	....	....	....	....
July	....	....	....	....	....	....	....	....	....	....
August	....	....	....	....	....	....	....	....	....	....
September	....	....	....	....	....	....	....	....	....	....
October	....	....	....	....	....	....	....	....	....	....
November	....	....	....	....	....	....	....	....	....	....
December	1,183	136	201	579	2,249	103	9	22	3,056	7,538
Total for the year	78,006	3,204	1,812	26,184	20,112	224	9	1,004	115,343	*236,898

* Estimating three persons to each sleigh, the total number entering in sleighs is 710,694.

TABLE *showing the Number of Visitors to the Central Park, on Sundays, during the Year* 1873.

1873.	ON FOOT.	ON HORSEBACK.	IN CARRIAGES.	IN SLEIGHS.	TOTALS.
Jan. 5th............	984	2	141	888	2,015
" 12th............	52,509	44	1,497	28,797	82,847
" 19th............	42,786	8	5,274	6,852	54,920
" 26th............	59,557	47	1,074	42,642	103,320
Feb. 2d............	34,360	28	693	18,627	53,708
" 9th............	18,932	115	5,748	....	24,795
" 16th............	315	2	303	840	1,460
" 23d............	18,908	26	3,951	5,061	27,946
Mar. 2d............	23,965	68	5,724	12	29,769
" 9th............	50,948	142	14,202	....	65,292
" 16th............	21,602	142	12,243	....	33,987
" 23d............	29,439	196	17,532	....	47,167
" 30th............	30,442	261	15,897	....	46,600
Apl. 6th............	21,254	144	12,471	....	33,869
" 13th............	31,280	176	11,073	....	42,529
" 20th............	2,944	189	6,804	....	9,937
" 27th............	43,973	247	20,940	....	65,160
May 4th............	82,400	274	25,407	....	108,081
" 11th............	16,679	225	11,811	....	28,715
" 18th............	61,249	335	24,696	....	86,280
" 25th............	46,174	274	23,997	....	70,445
June 1st............	66,065	217	21,750	....	88,032
" 8th............	60,268	192	24,015	....	84,475
" 15th............	59,266	241	17,319	....	76,826
" 22d............	30,278	136	13,863	....	44,277
" 29th............	66,407	123	22,104	....	88,634
July 6th............	38,074	130	20,481	....	58,685
" 13th............	43,119	106	17,282	....	60,508

TABLE *showing the Number of Visitors to the Central Park, on Sundays, during the Year* 1873.—*(Continued.)*

1873.	ON FOOT.	ON HORSEBACK.	IN CARRIAGES.	IN SLEIGHS.	TOTALS.
July 20th............	56,224	130	26,982	....	83,336
" 27th............	5,436	35	3,942	....	9,413
Aug. 3d............	23,328	91	11,100	....	34,519
" 10th............	75,135	108	19,440	....	94,683
" 17th	63,914	116	20,172	....	84,202
" 24th............	76,953	118	20,499	....	97,570
" 31st............	40,580	117	18,189	....	58,886
Sept. 7th............	45,458	145	21,372	....	66,975
" 14th............	36,744	100	15,648	....	52,492
" 21st............	41,377	141	20,271	....	61,789
" 28th............	50,463	141	28,746	....	79,350
Oct. 5th............	56,477	586	62,850	....	119,913
" 12th............	19,597	303	47,529	....	67,429
" 19th............	48,121	269	87,426	....	135,816
" 26th............	43,072	356	64,566	....	107,994
Nov. 2d............	25,839	324	22,377	....	48,540
" 9th............	18,181	259	17,604	....	36,044
" 16th............	17,533	320	19,749	....	37,602
" 23d............	15,280	160	19,671	....	35,111
" 30th............	10,816	406	18,963	....	30,185
Dec. 7th............	12,647	190	18,348	....	31,185
" 14th............	10,776	203	14,022	....	25,001
" 21st............	15,588	237	18,405	....	34,230
" 28th............	4,215	35	6,621	4,977	15,848
Total..........	1,867,931	8,980	982,785	108,696	2,968,392

TABLE *showing the Number of Visitors to the Central Park, on Concert Days, during the Year* 1873.

1873.	ON FOOT.	ON HORSEBACK.	IN CARRIAGES.	TOTALS.
May 31st..........	24,309	337	20,202	44,848
June 28th.........	19.752	116	8,475	28,343
July 4th	42,308	108	8,757	51,173
" 5th....	17,034	148	8,010	25,192
" 12th.	21,221	139	13,824	35.184
" 19th.	9.915	62	7.392	17.369
" 26th.	19,366	76	9,966	29,408
August 2d	22,668	127	13.326	36.121
" 9th....... ..	28,908	143	16,419	45,470
" 16th	28,002	130	13,113	41,245
" 23d	29,162	164	18,087	47,413
" 30th........	25.432	111	16,344	41,887
September 6th......	26,393	123	15.159	41,675
" 13th....	22,668	111	17,340	40,119
" 20th....	17.752	143	17,943	35,838
" 27th....	22,416	177	19,017	41,610
October 4th.......	15.586	553	33.255	49,394
17 days..........	392,892	2,768	256,629	652,289

TABLE *showing the largest and smallest number of visitors to the Park, in winter and in summer respectively, in the year* 1873.

WINTER (JANUARY, FEBRUARY, MARCH AND DECEMBER.)

The largest number of visitors, on foot, on any one day, was	59,557	on Sunday, 26th January.
The smallest number of visitors, on foot, on any one day, was	315	on Sunday, 16th February.
The largest number of visitors, on horseback, on any one day, was	263	on Wednesday, 3d December.
The smallest number of visitors, on horseback, on any one day, was	2	on Sunday, 16th February.
The largest number of visitors, in carriages, on any one day, was	18,840	on Sunday, 7th December.
The smallest number of visitors, in carriages, on any one day, was	303	on Sunday, 16th February.
The largest number of visitors, in sleighs, on any one day, was	42,042	on Sunday, 26th January.
The smallest number of visitors, in sleighs, on any one day, was	3	on Friday, 26th December.
The largest number of visitors, of all classes, on any one day, was	103,320	on Sunday 26th January.
The smallest number of visitors, of all classes, on any one day, was	1,460	on Sunday, 16th February.

SUMMER (APRIL TO NOVEMBER, INCLUSIVE.)

The largest number of visitors, on foot, on any one day, was	82,400	on Sunday, 4th May.
The smallest number of visitors, on foot, on any one day, was	376	on Sunday, 12th April.
The largest number of visitors, on horseback, on any one day, was	586	on Sunday, 5th October.
The smallest number of visitors, on horseback, on any one day, was	1	on Saturday, 12th April.
The largest number of visitors, in carriages, on any one day, was	87,420	on Sunday, 19th October.
The smallest number of visitors, in carriages, on any one day, was	384	on Saturday, 12th April.
The largest number of visitors, of all classes, on any one day, was	135,816	on Sunday, 19th October.
The smallest number of visitors, of all classes on any one day, was	701	on Saturday, 12th April.

The total number of visits, in carriages, during the year, was	4,423,860
The total number of visits, in sleighs, during the year, was	710,694
The total number of visits, on horseback, during the year, was	56,955
The total number of visits, on foot, during the year	4,868,620
	10,060,159

The average daily number of visits, of all classes, was	27,592
The proportion of foot visits to the whole number, was	48½ in 100

TABLE *showing the Number of Visitors to the Central Park, for each Month, during the past Eleven Years.*

MONTHS.	1863.	1864.	1865.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.
January	169,621	809,359	892,474	543,470	991,724	634,368	503,346	358,619	819,254	917,865	983,247
February	200,601	305,680	380,159	484,075	251,652	477,999	295,932	354,676	475,302	571,743	480,440
March	179,114	301,536	343,578	291,405	261,313	328,475	319,234	397,096	527,262	572,745	519,196
April	363,143	372,303	576,955	240,107	686,999	396,437	639,921	621,776	714,235	896,824	766,506
May	149,302	607,243	582,280	778,087	615,131	561,822	736,670	808,362	1,136,474	1,453,310	875,201
June	504,785	470,135	771,685	879,239	753,589	1,028,156	849,427	970,007	1,117,150	1,500,205	1,182,032
July	375,627	1,115,783	914,548	712,995	725,609	765,246	959,123	947,460	1,222,482	1,067,934	875,092
August	549,526	439,566	950,638	682,405	614,114	741,519	978,685	842,534	1,141,681	1,040,522	1,042,208
September	681,861	507,021	891,918	826,593	766,635	596,203	731,081	1,070,063	1,234,341	1,002,792	981,330
October	486,046	452,219	530,000	1,344,181	743,959	711,339	613,395	938,232	1,051,489	775,386	1,303,994
November	237,486	373,682	475,968	537,485	374,114	457,008	428,731	696,372	742,543	446,929	625,418
December	429,388	365,652	282,936	519,331	442,956	391,226	295,412	623,629	582,198	627,584	425,495
Total for year	4,326,500	6,120,179	7,593,139	7,839,373	7,227,855	7,089,798	7,350,957	8,628,826	10,764,411	10,873,839	10,060,159

TABLE *showing the Number of Visitors to the Central Park, on Sundays, for each Month, during the past Ten Years.*

MONTHS.	1864.	1865.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.
January	198,429	166,597	173,971	185,097	218,323	177,105	120,325	170,433	192,440	243,102
February	114,502	43,953	100,228	49,987	110,421	96,407	102,605	42,960	169,895	107,909
March	111,946	89,951	68,435	112,708	102,923	112,941	79,709	143,646	118,532	222,815
April	99,532	191,813	172,602	256,505	110,659	175,059	157,926	291,646	297,680	151,495
May	209,176	111,540	237,252	191,464	223,205	194,175	266,894	285,636	414,781	293,521
June	126,387	200,172	183,765	202,422	253,681	102,310	289,239	233,435	577,527	382,244
July	225,547	266,655	203,771	207,329	167,576	233,040	229,658	366,150	325,677	211,942
August	90,033	190,453	201,290	204,694	205,403	313,518	190,140	307,363	288,049	369,860
September	90,749	212,184	268,031	258,768	132,411	175,120	244,598	397,073	362,075	260,606
October	98,141	190,562	171,685	205,358	106,049	151,252	199,864	341,306	230,567	431,152
November	81,296	115,366	109,676	82,484	168,091	117,079	100,088	217,707	130,119	187,482
December	110,196	74,134	143,552	86,895	44,333	35,961	101,078	165,142	178,494	106,264
Total for year	1,555,934	1,853,380	2,034,258	2,043,711	1,993,165	1,974,066	2,082,124	2,962,497	3,285,836	2,968,392

APPENDIX J.

TABLES

RELATING TO BOATING AND SKATING

AND THE

PROMENADE CONCERTS

IN THE

CENTRAL PARK.

TABLE *showing the use of Boats on the Central Park during the Season of* 1872.

			CALL BOATS.	PASSAGE BOATS.
Number of passengers served during the week ending	April	20	184	804½
" " " " " "	"	27	544	2,249½
" " " " " "	May	4	725	2,051
" " " " " "	"	11	650	1,768
" " " " " "	"	18	970	3,254
" " " " " "	"	25	768	3,030
" " " " " "	June	1	1,385	3,433
" " " " " "	"	8	1,252½	3,399½
" " " " " "	"	15	1,978½	4,933
" " " " " "	"	22	2,663	4,296½
" " " " " "	"	29	1,607	2,967½
" " " " " "	July	6	1,781½	7,220½
" " " " " "	"	13	1,338	3,452
" " " " " "	"	20	1,676	4,159
" " " " " "	"	27	1,442½	4,130½
" " " " " "	August	3	1,244½	4,559
" " " " " "	"	10	937½	4,547½
" " " " " "	"	17	725½	3,473
" " " " " "	"	24	1,462½	4,873
" " " " " "	"	31	949½	4,903½
" " " " " "	Sept.	7	1,015	3,804½
" " " " " "	"	14	818½	3,318
" " " " " "	"	21	361½	1,749½
" " " " " "	"	28	626½	2,515½
" " " " " "	Oct.	5	235½	1,068
" " " " " "	"	12	424½	1,711½
" " " " " "	"	19	94½	513½
" " " " " "	"	26	159	647
" " " " " "	Nov.	2	189	579
" " " " " "	"	9	15	77
TOTALS..			28,223½	89,488

TABLE *showing the use of Boats on the Central Park during the Season of* 1873.

			CALL BOATS.	PASSAGE BOATS.
Number of passengers served during the week ending	May	3	234	875½
" " " " " "	"	10	443	1,612½
" " " " " "	"	17	419½	1,329
" " " " " "	"	24	856	2,864
" " " " " "	"	31	1,511	3,921½
" " " " " "	June	7	2,083	5,672
" " " " " "	"	14	2,042½	4,734½
" " " " " "	"	21	1,872	4.448
" " " " " "	"	28	831	2,849
" " " " " "	July	5	2,061½	6,517
" " " " " "	"	12	2,069½	5,277½
" " " " " "	"	19	1,412	4,686
" " " " " "	"	26	1,855	6,175
" " " " " "	August	2	925½	2,651½
" " " " " "	"	9	1,575½	4,475½
" " " " " "	"	16	1,065	4,365½
" " " " " "	"	23	1,075½	3,121
" " " " " "	"	30	1,565½	6.554½
" " " " " "	Sept.	6	1,184½	4,366
" " " " " "	"	13	823½	3,599
" " " " " "	"	20	579	2,023
" " " " " "	"	27	747	3,203
" " " " " "	Oct.	4	714	2.716
" " " " " "	"	11	747	2.766½
" " " " " "	"	18	340½	1,200½
" " " " " "	"	25	308½	1.425
" " " " " "	Nov.	1	134	448½
" " " " " "	"	8	91	303
" " " " " "	"	15	38	112
TOTALS			29,604	94,292

TABLE *showing the Days on which there was Skating*

1858–59.	1859–60.	1860–61.	1861–62.	1862–63.	1863–64.	1864–65.	1865–66.
1858.	1859.	1860.	1861.	1862.	1863.	1864.	1866.
Dec. 29	Dec. 24	Dec. 14	Dec. 29	Dec. 22	Dec. 11	Dec. 21	Jan. 8
1859.	“ 25	“ 15	“ 30	1863.	“ 23	“ 22	“ 9
Jan. 3	“ 26	“ 16	“ 31	Jan. 20	“ 24	“ 23	“ 10
“ 22	“ 27	“ 18	1862.	Feb. 5	“ 25	“ 24	“ 11
“ 23	“ 28	1861.	Jan. 1	“ 24	“ 26	“ 25	“ 12
“ 24	“ 29	Jan. 11	“ 2	“ 25	“ 27	“ 30	“ 15
“ 25	“ 30	“ 12	“ 3	“ 26	1864.	1865.	“ 17
“ 26	“ 31	“ 13	“ 4		Jan. 3	Jan. 2	“ 18
“ 27	1860.	“ 14	“ 5		“ 4	“ 3	“ 19
“ 28	Jan. 1	“ 18	“ 6		“ 6	“ 4	“ 21
“ 29	“ 2	“ 19	“ 7		“ 7	“ 5	“ 22
“ 30	“ 3	“ 20	“ 8		“ 8	“ 6	“ 23
Feb. 10	“ 4	“ 21	“ 11		“ 9	“ 8	“ 24
“ 11	“ 5	“ 22	“ 14		“ 10	“ 9	“ 26
“ 12	“ 6	“ 23	“ 17		“ 11	“ 11	“ 27
“ 21	“ 7	“ 26	“ 22		“ 12	“ 12	“ 28
“ 22	“ 26	“ 28	“ 23		“ 13	“ 13	“ 29
“ 23	“ 27	“ 29	“ 24		“ 16	“ 15	“ 30
Mar. 5	“ 28	“ 30	“ 27		“ 17	“ 16	“ 31
“ 6	“ 29	“ 31	“ 28		“ 22	“ 17	Feb. 1
	“ 30	Feb. 1	“ 29		“ 23	“ 18	“ 2
	“ 31	“ 4	Feb. 1		Feb. 18	“ 19	“ 3
	Feb. 1	“ 5	“ 2		“ 19	“ 20	“ 4
	“ 2	“ 6	“ 3		“ 20	“ 21	“ 5
	“ 3	“ 7	“ 4		“ 21	“ 22	“ 6
	“ 5	“ 8	“ 5			“ 24	“ 7
	“ 8	“ 9	“ 6			“ 25	“ 17
	“ 9	“ 10	“ 8			“ 26	“ 18
	“ 10		“ 9			“ 27	
	“ 11		“ 10			“ 28	
	“ 12		“ 11			“ 29	
	“ 13		“ 12			“ 30	
	“ 14		“ 13			“ 31	
	“ 15		“ 15			Feb. 1	
	“ 16		“ 16			“ 2	
	“ 17		“ 17			“ 3	
	“ 20		“ 18			“ 4	
			“ 19			“ 6	
			“ 21			“ 7	
			“ 22			“ 9	
			“ 23			“ 10	
			“ 25			“ 11	
			“ 26			“ 13	
			“ 28			“ 14	
			Mar. 1			“ 15	
			“ 2			“ 18	
			“ 3			“ 19	
			“ 5			“ 20	
			“ 6			“ 21	
			“ 7			“ 22	
			“ 8			“ 24	
Days . . 19	Days . 36	Days . . 27	Days . . 50	Days . . 6	Days . . 24	Days . . 50	Days . . 28

at the Park, since it was opened to the Public in 1858.

1866-67.	1867-68.	1868-69.	1869-70.	1870-71.	1871-72.	1872-73.	1873-74.
1866.	1867.	1868.	1870.	1870.	1871.	1872.	1874.
Dec. 15	Dec. 17	Dec. 14	Feb. 25	Dec. 26	Dec. 15	Dec. 16	Jan. 20
.. 16	.. 18	.. 15		.. 27	.. 16	.. 17	.. 26
.. 19	.. 19	.. 16		.. 28	.. 17	.. 18	.. 27
.. 20	.. 20	.. 19		.. 29	.. 19	.. 19	Feb. 2
.. 21	.. 21	.. 20		.. 30	.. 20	.. 21	.. 4
.. 22	.. 24	.. 22		.. 31	.. 21	.. 22	.. 5
.. 26	.. 25	.. 24		1871.	.. 22	.. 23	.. 6
.. 28	.. 30	.. 25		Jan. 1	.. 25	.. 24	.. 7
.. 29	.. 31	.. 26		.. 2	.. 28	.. 25	.. 8
.. 30	1868.	.. 27		.. 3	.. 29	.. 28	.. 9
.. 31	Jan. 3	.. 28		.. 4	.. 30	.. 29	.. 10
1867.	.. 5	.. 29		.. 7	1872.	.. 30	.. 11
Jan. 1	.. 6	.. 30		.. 8	Jan. 2	1873.	.. 12
.. 2	.. 7	.. 31		.. 9	.. 3	Jan. 1	
.. 3	.. 9	1869.		.. 10	.. 6	.. 2	
.. 4	.. 10	Jan. 2		.. 11	.. 7	.. 4	
.. 5	.. 11	.. 3		.. 12	.. 8	.. 7	
.. 6	.. 12	.. 6		.. 13	.. 9	.. 8	
.. 7	.. 13	.. 7		.. 17	.. 10	.. 10	
.. 8	.. 14	.. 11		.. 18	.. 11	.. 11	
.. 9	.. 15	.. 13		.. 19	.. 15	.. 12	
.. 10	.. 16	.. 14		.. 20	.. 16	.. 13	
.. 11	.. 17	.. 16		.. 21	.. 17	.. 15	
.. 12	.. 18	.. 17		.. 22	.. 18	.. 19	
.. 13	.. 19	.. 18		.. 23	.. 19	.. 20	
.. 14	.. 20	.. 20		.. 24	.. 21	.. 21	
.. 15	.. 22	.. 21		.. 25	.. 22	.. 23	
.. 16	.. 23	.. 22		.. 26	.. 23	.. 25	
.. 19	.. 25	.. 23		.. 27	.. 24	.. 26	
.. 20	.. 26	.. 24		.. 28	.. 25	.. 28	
.. 23	.. 28	.. 26		.. 29	.. 26	.. 29	
.. 24	.. 31	.. 27		.. 30	.. 27	.. 30	
.. 25	Feb. 1	.. 28		.. 31	.. 28	.. 31	
.. 26	.. 2	Feb. 1		Feb. 2	.. 30	Feb. 1	
.. 27	.. 3	.. 2		.. 3	.. 31	.. 2	
.. 28	.. 4	.. 5		.. 4	Feb. 1	.. 3	
.. 29	.. 5	.. 6		.. 5	.. 2	.. 5	
.. 30	.. 6	.. 7		.. 6	.. 4	.. 6	
Feb. 1	.. 7	.. 8		.. 7	.. 5	.. 7	
.. 2	.. 8			.. 8	.. 7	.. 8	
	.. 10			.. 10	.. 8	.. 9	
	.. 11			.. 11	.. 9	.. 10	
	.. 12			.. 13	.. 10	.. 11	
	.. 13			.. 15	.. 15	.. 14	
	.. 14			.. 16	.. 16	.. 15	
	.. 15			.. 19	.. 17	.. 18	
	.. 16			.. 20	.. 18	.. 20	
	.. 17			.. 22	.. 24	.. 22	
	.. 18			.. 23		.. 23	
	.. 19					.. 24	
	.. 20					.. 25	
	.. 22					.. 26	
	.. 23					Mar. 1	
	.. 24					.. 2	
	.. 25					.. 3	
	.. 26					.. 4	
	.. 28					.. 5	
	.. 29					.. 6	
	Mar. 1					.. 7	
	.. 4					.. 8	
	.. 5						
	.. 6						
Days.. 39	Days.. 61	Days.. 38	Days.. 1	Days.. 48	Days.. 47	Days.. 59	Days.. 13

Table *showing the Number of Promenade Concerts in the several Parks during the Year* 1872.

		May.	June.	July.	August.	Sept.	Oct.	Nov.	Total in each Park.
The Battery..........	Tuesdays . .	 28	. . . 11 18 . .	2 . . 9 16 23 30	. . 6 13 20 27	3 10 . . 24	1	. . . . . .	16
Mt. Morris Square.....	Wednesdays..	. . . . . .	. . . .	. . . . . . 24 . .	. . 7 14 21 28	4 11 18 25	2	. . . . . .	10
Tompkins Square......	Fridays......	 31	. . . . 21 28	. . 5 12 19 26 . .	2 9 . . 23 30	6 13 20 27	. . . . . .	. . . . . .	15
Central Park..........	Saturdays . . .	*18 25 . .	1 8 15 22 29	†4 6 13 20 27 . .	3 10 17 24 31	7 14 21 28	5 12 19	‡2	25
Total for each month..........		4	9	15	17	15	5	1	
Total during the year 1872....................									66

* Unveiling of Shakespeare Monument.

† Thursday.

‡ Unveiling of the Scott Monument.

TABLE *showing the Number of Promenade Concerts in the several Parks during the Year* 1873.

		MAY.	JUNE.	JULY.	AUGUST.	SEPTEMBER.	OCTOBER.	TOTAL IN EACH PARK.
Tompkins Square	Tuesday			22	5 19	2 16 30		6
Mt. Morris Square	Thursday			10 24	7 21	4	2	6
Washington Square	Tuesday			15	12 26	9 23		5
Madison Square	Thursday			17 31	28		11 18 25	6
Central Park	Saturday	*31	28	†4 5 12 19 26	2 9 16 23 30	6 13 20 27	4	17
Total in each month		1	1	11	12	10	5	
Total during the year 1873								40

* Inauguration of the Bethesda Fountain.

† Friday.

TABLE *showing the Number and Dates of Concerts*

1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.
July 9	Aug. 25	Aug. 10	June 7	May 30	June 4	June 3	June 2
" 23	Sept. 1	" 17	" 14	June 6	" 11	" 10	" 9
" 30	" 8	" 24	" 21	" 13	" 18	" 17	" 16
Aug. 6	" 15	" 31	" 28	" 20	" 25	" 24	" 23
" 20	" 22	Sept. 7	July 5	" 27	July 2	July 1	" 30
" 27	" 29	" 14	" 12	July 4	" 4	" 4	July 4
Sept. 3	Oct. 13	" 21	" 19	" 11	" 9	" 8	" 7
" 10	" 27	" 28	" 26	" 18	" 16	" 15	" 14
Oct. 1	Nov. 18	Oct. 5	Aug. 2	" 25	" 23	" 29	" 21
" 15		" 12	" 9	Aug. 1	" 30	Aug. 5	" 28
			" 16	" 8	Aug. 6	" 12	Aug. 4
			" 23	" 15	" 13	" 16	" 11
			" 30	" 22	" 20	" 19	" 18
			Sept. 6	" 29	" 27	" 23	" 25
			" 13	Sept. 5	Sept. 3	" 26	Sept. 1
			" 20	" 12	" 10	" 30	" 8
			" 27	" 26	" 17	Sept. 2	" 15
			Oct. 4	Oct. 3	" 24	" 6	" 22
			" 18	" 10	Oct. 1	" 9	" 29
			" 25	" 17	" 8	" 13	Oct. 6
			Nov. 1		" 15	" 16	" 13
					" 22	" 20	" 20
					" 29	" 23	" 27
					Evenings.	" 27	
					July 6	" 30	
					" 13	Oct. 4	
					" 20	" 7	
						" 14	
						" 21	
						" 28	
Days. . 10	Days. 9	Days. 10	Days. 21	Days. 20	Days. 26	Days. 30	Days. 23

on the Central Park during the past fifteen years.

1867.	1868.	1869.	1870.	1871.	1872.	1873.
June 8	June 6	May 29	May 21	May 20	May 18	May 31
" 15	" 13	June 5	June 18	" 27	" 25	June 28
" 22	" 20	" 12	" 25	June 3	June 1	July 4
" 29	" 27	" 19	July 2	" 10	" 8	" 5
July 4	July 4	" 26	" 9	" 17	" 15	" 12
" 6	" 11	July 3	" 16	" 24	" 22	" 19
" 13	" 18	" 5	" 23	July 1	" 29	" 26
" 20	" 25	" 10	" 30	" 4	July 4	Aug. 2
" 24	Aug. 1	" 17	Aug. 6	" 8	" 6	" 9
" 27	" 15	" 21	" 13	" 15	" 13	" 16
" 31	" 22	" 28	" 20	" 22	" 20	" 23
Aug. 7	" 29	" 31	" 27	" 29	" 27	" 30
" 14	Sept. 5	Aug. 7	Sept. 3	Aug. 5	Aug. 3	Sept. 6
" 17	" 12	" 11	" 10	" 12	" 10	" 13
" 21	" 19	" 14	" 24	" 19	" 17	" 20
" 24	" 26	" 18	Oct. 1	" 26	" 24	" 27
" 28	Oct. 3	" 21	" 8	Sept. 2	" 31	Oct. 4
" 31	" 10	" 25	" 15	" 9	Sept. 7	
Sept. 4	" 17	" 28	" 22	" 16	" 14	
" 7	" 24	Sept. 1	" 29	" 23	" 21	
" 11	" 31	" 4		" 30	" 28	
" 14		" 11			Oct. 5	
" 18		" 15			" 12	
" 21		" 18			" 19	
" 25		" 25			Nov. 2	
" 28		" 29				
Oct. 2		Oct. 2				
" 9		" 9				
" 12		" 16				
" 16		" 30				
" 19						
" 23						
" 26						
Days. . . 33	Days. . 21	Days. . 30	Days. . 20	Days. . 21	Days. 25	Days. 17

TABLE *showing the Number of Concerts at the smaller Parks, during the past four years.*

	1870.	1871.	1872.	1873.
Mt. Morris Square	21	18	10	6
Tompkins Square	22	16	15	6
Washington Square	23	..	..	5
Madison Square	20	6	..	6
The Battery	19	9	16	..
City Hall Park	..	7	..	..
Totals	105	56	41	23

APPENDIX J.

REPORT

OF THE

LANDSCAPE ARCHITECT

ON THE

PROPOSED NEW SYSTEM OF WALKS IN THE SOUTH-EAST QUARTER OF THE CENTRAL PARK.

REPORT OF THE LANDSCAPE ARCHITECT

ON THE

PROPOSED NEW SYSTEM OF WALKS IN THE SOUTH-EAST QUARTER OF THE CENTRAL PARK.

DEPARTMENT OF PUBLIC PARKS,
OFFICE OF DESIGN AND SUPERINTENDENCE,
NEW YORK, 11th December, 1872.

TO THE HON. HENRY G. STEBBINS,
President of the Board.

SIR: On June 19th, the undersigned was requested to report as to the obliteration of a walk leading from the Drive to the Museum, and to suggest a plan in relation to approaches to the Museum from the main Drive.

A great number of visitors entering the Park on Fifty-ninth street, from the Sixth, Seventh and Eighth avenues and, on the west side of the Drive, from Fifth avenue wish to visit the Museum and Menagerie, and a majority of all who do so, both in going and returning, strive to make their way across the Drive at some point between the Scholar's Gate and the Mall. The Drive is here more thronged, horses are more difficult of control, and it is more annoying to drivers to be compelled to pull up to avoid footmen than anywhere else on the Park. Most of these visitors also attempt to cross the Bridle Road, and not a few to follow the Bridle Road, using it as a walk, between the Ball Ground and the Museum, putting themselves in danger and greatly annoying riders. Visitors to the Croquet Grounds and swings on the east side often take the same courses. The opening of the Lennox Library, the Conservatory and the Art Museum will add to the number; and the need, recognized in the resolution, for some better means of communication from east to west, through the district in question, will not cease with the removal of the Museum and Menagerie.

With the present arrangements, not only is the crossing of the Drive and Ride on the line of walk which it is proposed to obliterate, highly objectionable, but the attempts to cross at other and forbidden points are so frequent, that if half the keepers at any time on the Park were employed to prevent it they could not be entirely successful. As things are, visitors may be seen on any fine day constantly disregarding the rules in this respect, which, both in the minds of visitors and of the officers and keepers of the Park, are thus brought into contempt. The disorder and injury which directly and indirectly results is much to be regretted, and the question of a remedy has had prolonged attention.

The only way in which the present difficulties of communication in this quarter can be adequately overcome is by the introduction of another arched passage across the Drive and Ride. In fact, by no other plan can any essential improvement be secured upon the present objectionable arrangements, until, at least, the Menagerie and Museum shall have been removed.

The line of the present walk leading across the Ride from the Museum offers favorable conditions for an archway, as the required excavation would be wholly in an embankment of earth formed above the natural surface, and the material to be removed would all be needed close at hand in preparing the ascent needed to the arch over the Bridle Road. The map hereto appended, marked A, shows the position of the arches as thus suggested, and also the new lines of walk which it would be practicable to form in connection with them. Three different routes are suggested for reaching the proposed arch from the entrance walk from the Scholar's Gate; the walk leading from the Sixth avenue entrance along the shore of the pond is extended to the arch and beyond it, so as to give an improved approach to the Mall as well as to the Museum and Menagerie.

By a small foot-bridge at the narrows of the pond, a much more direct line of communication is opened between the Museum and all the southeast parts of the Park and the south entrances on Sixth, Seventh and Eighth avenues. The walks proposed to be formed for this purpose lead across the peninsula and open an interesting district from which the public has hitherto been excluded.

Another sketch (B) shows how the ground now occupied by the Museum and Menagerie Buildings would probably be laid out after their removal, and it will be evident from it that the works now proposed, though especially desirable while those buildings remain, would be a great permanent convenience.

It is proposed to build the arch under the Drive of rough stone. Its estimated cost is $50,000. It is proposed to cross the Bridle Road with a light span of iron, similar in character to those which have been made over it at other points, and the cost of which has been five to seven thousand dollars. At present rates it is estimated that this work would cost $10,000.

Respectfully,

FRED. LAW OLMSTED,

Landscape Architect.

APPENDIX K.

REPORT

OF THE

LANDSCAPE ARCHITECT

ON THE

PRELIMINARY PLANS FOR RIVERSIDE PARK AND AVENUE.

REPORT OF THE LANDSCAPE ARCHITECT

ON

RIVERSIDE PARK AND AVENUE.

DEPARTMENT OF PUBLIC PARKS,
OFFICE OF DESIGN AND SUPERINTENDENCE,
NEW YORK, 29th March, 1873.

To the Hon. HENRY G. STEBBINS,
President of the Board:

SIR—The topographical map of the site of the proposed Riverside Park is completed; a model of the ground is nearly prepared, and a series of soundings is now being made to determine certain conditions of the ground to which the plan of the Park must be conformed.

A brief study of the capabilities of the site has led me strongly toward a conclusion on which, if sound, it might be advisable for the Board to recommend immediate legislation. I therefore ask your attention to the following considerations:

The tract of land assigned to the Park is a steep hill side, the upper parts of which will overlook the buildings which are to stand between it and the Hudson river. The Twelfth avenue will bound the Park on the west, and its grade is such for a distance of nearly two miles that an excavation must be made in the foot of the hill from twenty to nearly a hundred feet in depth. The hill being chiefly of earth, the bank will cave and wash off unless artificially sustained. It would be most economically treated by a retaining wall of moderate height at the bottom and a sloping cut above it.

As the western parts of the tract will thus generally be too steep to admit of the construction of walks except at excessive cost, and will be cut off from the view of the river by buildings, the permanent condition of value of the site as a place of public recreation lies wholly in the higher parts near the eastern boundary.

At the points on the eastern parts where the views will be finest, and which will be most attractive, the natural surface slopes rapidly to the west, and generally a footing for visitors will need to be gained by more or less excavation and embankment.

A walk through the Park would, for example, for the most part be a continuous shelf.

Such a shelf on the side of the Park facing the afternoon sun would be intolerably hot should it not be well shaded.

But trees cannot stand on the slope to the westward of it without cutting off the view, and thus destroying the main element of value of the tract for a public park. The shelf must therefore be wide enough for the trees to stand on the level of the walk.

The eastern boundary of the tract is a highway intended to be formed on the general plan of the city avenues, one hundred feet wide. Following the natural surface as closely as practicable, its grade will be undulating and often disagreeably steep. The grade of Fifth avenue, where it is steepest on Murray Hill, is about as sharp as it is pleasant to drive upon at a trot. This is at the rate of inclination of one in twenty-six. There are a dozen places on the Riverside avenue where the grade will be considerably steeper than this, and several where it will be steeper than 1 in 16. The value of the avenue as a pleasure drive will be much restricted by this circumstance.

If a walk is formed in the Park, as above indicated, it will have to be laid out generally at an elevation of from ten to thirty feet below that of the avenue, and the heads of trees planted on the same level to shade it, will wholly intercept the view from those parts of the avenue where it would otherwise be finest.

The advantages of the situation for a grand public promenade are thus to be lost as far as Riverside avenue is concerned.

It is then a question how far they can be supplied in the Park.

A driving road and walk, both sufficient for general public accommodation, obviously cannot be formed at any reasonable cost within the Park as at present defined.

Abandoning the drive, a walk twenty-five feet wide might be formed along the highest parts of the hill side, where it would command the view over the Hudson, which would bring it for considerable distances close under the retaining wall of the avenue. Such a walk, if extended three miles, which is the length of the Park site, would accommodate not more than one quarter as many foot visitors as the walks on the Central Park. Overbanked by the avenue, shaded by a single, formal curved line of trees, the steep slope below it generally covered with turf and low shrubs in order to keep the view open, it could neither have a very stately nor yet a picturesque character, and it would be difficult to avoid a monotonous dullness.

Yet it would only have been obtained, as has been shown, at the cost of the finer views which might otherwise have been commanded from the outer sidewalk of the avenue above it.

Regarding the present property of the city in the site of the proposed Park, and in the site of the proposed Avenue as one interest, it would seem to be but feebly used by any such method of dealing with it.

If the bounds of the Park could be extended to the east line of Riverside avenue, with a provision that a highway affording equal public accommodation should be carried through the Park, this might be done, at points especially to which the above objections to the present plan more particularly apply, upon one broad shelf, whereon would be associated ample driving, riding and walking ways; the whole shaded by trees so planted as not to obstruct the view to the westward from any part. With freedom to divide and divert the main drive in whole or part from the eastern boundary where desirable, somewhat easier grades could be obtained. The outer walk would generally follow a bold terrace, the slope below being planted with shrubs so arranged as to shut out of view the buildings and docks, and allow the eye to range over the expanse of the river beyond.

With these conditions it would not be difficult, nor would it take many years to form a really grand promenade of much value to the whole city, having for long distances something of the general character of the Spanish Alamedas, with the great advantage of a prospect of rare extent, great beauty and much variety of interest.

It would not be merely an addition to the existing pleasure grounds of the city but would supply a want which neither the Central Park nor any other has been designed or can be adapted to meet.

There may possibly be difficulties in the way of carrying out the suggestion which do not at once occur to me, but the advantages it promises are so great that I submit that it ought to have consideration. Work is already beginning on Riverside avenue, and the opportunity will be lost if application is not at once made to the Legislature.

Respectfully,

FRED. LAW OLMSTED,

Landscape Architect.

APPENDIX L.

STATISTICAL REPORT

OF THE

LANDSCAPE ARCHITECT.

STATISTICAL REPORT

OF THE

LANDSCAPE ARCHITECT.

DEPARTMENT OF PUBLIC PARKS,
OFFICE OF DESIGN AND SUPERINTENDENCE,
NEW YORK, 31st December, 1873.

To the Hon. S. H. WALES,
President of the Board:

SIR:—Accompanying a new reference map of the Central Park, I present:

I. A chronological table of the progress of the Park undertakings, mainly compiled from the minutes and annual reports.

II. A list of the printed documents and papers of the Commissioners of the Central Park and of the Department of Public Parks, chiefly relating to the Central Park, with an indication of their contents.

III. A list of the Commissioners from the organization of the Board in 1857 to the present date, with their terms of office.

IV. Statistics of areas and distances in the Central Park; general and by topographical divisions, and, respectively, of meadow surfaces, of wooded ground, of waters, of carriageways, of ridingways, of walks, of buildings, of seats, and of bridges and arches.

V. Table showing localities and areas of parks and places of New York.

VI. A statistical comparison of the public grounds of New York and of Paris.

VII. A comparison of areas and distances in the Bois de Boulogne, the Bois de Vincennes, Hyde Park and the Central Park.

VIII. Situations and distances of points in the Central Park and other parts of the City of New York.

IX. Quantities of certain works done and materials used in the construction of the Central Park.

X. An index to the trees, shrubs and plants of the Central Park, prepared by Robert Demcker, Landscape Gardener.

1. Deciduous trees and shrubs.
2. Evergreen and "American" plants.
3. Coniferous plants.
4. Perennial and Alpine plants.
5. Exotic and tender plants.

Respectfully,

FRED. LAW OLMSTED,

Landscape Architect.

I.

A Chronological Table of the progress of the Park undertakings, mainly compiled from the Minutes and Annual Reports of the Board.

1849.	
	Mr. A. J. Downing publicly urged the need of a large park for the City.
1850.	
	Mr. Downing visited England and published descriptions of the English public parks.
1851.	
April.	Mayor Kingsland recommended the Common Council to consider the question. A committee of the Common Council reported favorably, and recommended Jones' Wood for the purpose.
July.	Act of the Legislature (ch. 529) providing for a park at Jones' Wood.
August	Committee of Common Council recommended a change of the site.
1853.	
July.	Act of the Legislature (ch. 616) passed, taking site of the present Central Park, south of 106th street.
November.	Commissioners of Estimate and Assessment appointed under the Act of July.
1855.	
March.	Resolution passed by Common Council, favoring a reduction of the area; vetoed by Mayor Fernando Wood (23d).

1856.

February.	Report of Commissioners of Estimate and Assessment confirmed, and the title of the City to the site of the Central Park, south of 106th street, established.
May.	Mayor Wood and Street Commissioner Taylor appointed by the Common Council a Commission for the management of the Park (19th); Egbert L. Viele appointed Chief Engineer; Washington Irving, Charles P. Briggs, James Phalen and Stewart Brown, appointed Advisory Committee. Topographical Survey of the ground ordered. Special Police appointed.

1857.

April.	Act of Legislature (ch. 771) passed, establishing the Board of Commissioners of Central Park (17th). Board organized. J. E. Cooley, President (30th).
June.	Andrew H. Green elected Treasurer (16th).
August.	Workmen employed to clean the ground of stones and rubbish, and open surface drains; work begun (12th).
September.	Competitive designs for laying out the Park invited by public advertisement; 500 men at work (25th).
October.	Work suspended (27th).
November.	Work resumed (16th).
December.	1,120 men at work.

1858.

February.	Special Police disbanded. Appointment of 24 Parkkeepers (9th).

1858.	
March.	Ordinances for the government of the Park adopted (16th).
April.	Competitive designs received (1st); prize awarded (28th).
May.	Plans publicly exhibited 30 days. Work ordered under the prize plan (4th).
August	2,000 men at work.
October.	First tree planted in the Park (17th).
November.	2,600 men at work.
December.	Water let into the lake (7th). First skating on the Park (19th).
	The planting done this year was chiefly on the Mall and in its neighborhood, the East Green and the Ramble.
1859.	
January.	First curling on the Park (23d).
April.	Act of Legislature (ch. 101) passed, providing for the extension of the Park to 110th street (15th).
May.	Old Boston Post Road through the Park closed (26th).
June.	The Ramble declared open to public use by advertisement of the Commission (2d); 3,000 men at work.
July.	First Concert in the Park (by private contribution) (9th); first deer presented to the Park; 40 bbls. gunpowder used daily; 3,800 men employed.
August.	Vista Rock Tunnel cut through—work upon it having been continuous for several months, day and night.

1859.

November. 3½ miles of drive declared open to public use; Lake completed; first transverse road open to public use.

December. Construction of the Park south of Seventy-ninth street announced by Commission to be "complete."

During this year ten viaduct arches completed; 7 miles of walk constructed; 10 miles of drainage-pipe laid; 17,300 trees and shrubs planted, including most of the deciduous trees south of Seventy-ninth street; plan prepared for extension to 110th street; average force of laborers employed, 2,977.

1860.

May. Twelve Swans presented to the Park by the City of Hamburg.

June. Committee of State Senate investigated the management of the Park.

September. 2,500 men at work.

October. Casts of the Crawford Sculptures presented to the Park by Mrs. Crawford; 24 Swans presented by Vintners Company of London; 26 Swans presented by Dyers Company of London.

November. Ten Swans presented by the City of Hamburg.

During this year 16,200 trees planted, including most of the deciduous shrubs and evergreen trees south of Seventy-ninth street; average force of laborers employed, 1,328.

1861.

January. Proceedings to acquire title to ground north of 106th street discontinued.

1861.

April. Volunteers quartered in the old arsenal in the Park; regular boat service on the Lake commenced (24th).

June. Proceedings for extension of the Park to 110th street renewed (27th).

At the end of this year, carriage road in public use seven miles; total length of drainage-pipe laid in Park, 62 miles; of water-pipe, 13½ miles.

During this year the Fifty-ninth street Mall (previously formed by widening the street on the Park side 40 feet) was planted; enclosing wall of Park commenced on Fifty-ninth street; average force of laborers employed, 650; 52,700 trees and shrubs planted, including winter-drive district and most of the deciduous trees north of Seventy-ninth street and south of 110th street.

1862.

During this year average force of laborers employed, 560; trees and shrubs planted, 74,730; Mount St. Vincent used as an Army Hospital; Music Pavilion erected at the Mall.

1863.

April. Report of Commissioners of Estimate and Assessment in the proceeding to acquire title to land for Central Park north of 106th street, confirmed (21st).

September. Eight Deer presented to the Park by the City of Philadelphia.

During this year average force of laborers employed, 492; the expense of the music during the season was paid by the Commission, which heretofore had been defrayed by private contribution; number of visitors to the Park, 4,326,500.

1864.

April. Two Regiments of the National Guard illegally paraded in the Park; Manhattan Square annexed to Central Park by Act of the Legislature. (ch. 119.)

During this year English Sparrows were introduced on the Park (7 pairs); 20,000 trees and shrubs planted; average force of laborers employed, 541; number of visitors to the Park, 6,120,179.

1865.

June. Statue of Commerce presented.

December. The Loch completed and filled (15th).

During this year average force of laborers employed, 341; the drive and ride were completed; school-boys were allowed to play ball on the Park, and the building of the enclosing wall was continued to a total of 15,544 feet (say 3 miles); number of visitors to the Park, 7,593,139.

1866.

August. Harlem Meer completed. "Kinderberg," rustic shelter for children, built.

During this year average force of laborers employed, 256; trees and shrubs planted, 17,700; elms planted in Fifth Avenue Mall; number of visitors to the Park, 7,839,373.

1867.

June. Belvidere commenced.

October. Bronze of "the tigress" presented (28th); boys play-house commenced; Crawford Collection opened to visitors at Mount St. Vincent.

During this year average force of laborers employed, 241; the first hot-house erected on the Park, and the meteorological observatory established; number of visitors to the Park, 7,227,855.

1868.

June. Palæozoic Museum commenced (5th).

December. Bronze Statue of the Indian Hunter, by J. Q. A. Ward, presented (28th).

During this year average force of laborers employed, 396; trees and shrubs planted, 6,800; number of visitors to the Park, 7,089,798.

1869.

February. Bust of Humboldt presented (11th).

April. Statue of Columbus presented (8th).

September. Bust of Humboldt inaugurated (14th). Dairy commenced. Merchant's gate commenced.

November. Movable skating-house at Lake and curling-house at Conservatory water built.

During this year 12,522 trees and shrubs were planted; the average force of laborers employed was 1,179; the self-registering apparatus at the Observatory was first used; a Museum of Natural History was established in the Arsenal; steam-rollers were first used on

	the Park roads; boys play-house first in use; number of visitors to the Park, 7,350,957.
1870.	
May.	Charter of 1870 (ch. 137) took effect; first meeting of the Board of the Department of Public Parks (3d); Board organized; resolution to remove the offices of the Board to No. 265 Broadway passed (9th).
June.	Zoological Gardens ordered to be laid out (7th); day's work reduced to 8 hours in conformity with Act of Legislature (ch. 385, 1870). Carrousel ordered.
September.	Ground plan of Conservatory approved, and the foundations ordered to be prepared (7th).
October.	"Sheepfold" commenced.
December.	Building of the Palæozoic Museum ordered to be discontinued.
	During this year "Dairy" opened to use; average force of laborers employed 1,587; number of visitors to the Park, 8,628,826.
1871.	
April.	Stables and workshops commenced; reorganization of park-keepers' force.
November.	Reorganization of the Board (23d); work discontinued on Zoological Gardens, Deer House, Conservatory, &c.
December.	Park-keepers force reduced by the discharge of 54 keepers.
	During this year average force of laborers employed, 2,970; number of visitors to the Park, 10,764,411.

1872.

May. Deer House removed.

October. Carrousel removed to its present location.

November. Park-keepers' force ordered to be reduced, and extra keepers to be employed from the laboring force (20th).

During this year number of visitors to the Park, 10,873,839.

1873.

May. Construction work generally discontinued for lack of funds (15th); Bethesda fountain inaugurated (31st).

June. Reorganization of the Board under the charter of 1873 (ch. 335); construction work resumed.

October. Revised system of rules adopted for the regulation of the force of Park-keepers.

During this year number of visitors to the Park, 10,060,159.

II.

A List of the printed Documents and Papers of the Central Park Commission and of the Department of Public Parks, chiefly relating to the Central Park, with an indication of the contents of each:

No. of Doc.	1857.	
	January 19.	Document No. 5 of the Board of Aldermen, containing communication from Fernando Wood, Mayor, and Joseph S. Taylor, Street Commissioner, Commissioners of the Central Park, with a full report of operations, from Engineer in Chief (Vielé); together with an Appendix containing the history of the legislation and the action of the Common Council on the subject of the Central Park.
1	May 15.	Chap. 771, of 1857, passed April 17th, for the regulation and government of the Central Park.
2	May 26.	Communication to the Mayor relative to the purchase by the City of New York of the Arsenal building in the Central Park.
3	"	Report of the Committee on Buildings relative to the occupancy of land and buildings on the Central Park.
4	June 2.	Communication to the Common Council asking for appropriation of funds for the improvement of Central Park.

No of Doc.	1857.	
5	July 7.	Report of Committee on Roads and Walks recommending the removal of stone walls and surface stones from the Park by contract.
6	Sept. 1.	Report of the Executive Committee defining the duties of the various officers of the Commission.
7	"	Ordinance of Common Council to create funds for the improvement of the Central Park.
8	Sept. 11.	Report of Special Committee on advertising for plans for laying out Park, recommending the offer of four prizes for designs and specifications.
9	Sept. 23.	Report of Chief Engineer (Vielé) on present operations: enclosing the ground, drainage, manuring, removal of buildings and trees.
10	October 6.	Report of Superintendent (Olmsted) on a comprehensive plan of drainage for the Central Park.
11	October 20.	Report of Superintendent (Olmsted) on trees, and recommending the importation and purchase of trees and plants.
12	October 30.	Report of Committee on Drainage, recommending immediate thorough draining; also Report of Superintendent of Drainage (Waring) on the same subject.
13	Nov. 10.	Ordinance of the Common Council to provide money for the improvement of the Central Park.
	1858.	
	January 1.	First Annual Report for the year 1857.

No. of Doc.	1858.	
14	January 5.	Report of Chief Engineer (Viele) on the cost and character of material now being prepared for roadway construction, and on the method of construction.
15	March 16.	The First Annual Report of the Commission.
16	“	Report of Chief Engineer (Viele) on a comprehensive system of drainage ; on location, size, and depth, of drains and estimates of cost.
1	May 4.	Amendments to the By-Laws.
2	May 10.	Report of Special Committee relative to the work to be prosecuted forthwith.
3	May 17.	Report of Superintendent (Olmsted) as to modification of plan No. 33.
4	May 13.	By-Laws as amended.
5	May 31.	Report of Architect in Chief (Olmsted) as to certain modifications in the plan proposed by Commissioner Dillon.
6	June 17.	Report of Architect in Chief (Olmsted), with statement of the force employed and estimates of expenditures required for remainder of the year.
7	May 17.	Report of Superintendent (Olmsted) on the subject of the construction of certain parts of the work on the Park by contract, recommending materials to be procured by contract, and work to be done by days' work.
8	June 17.	Report of majority of the Special Committee, that it is not expedient for the work in the Central Park to be done by contract.

No. of Doc.	1858.	
9	June 17.	Report of minority of Special Committee, recommending that the work of construction generally be done by contract.
10	July 15.	Review of the two preceding Reports by the President (Green), recommending that the work be carried on as heretofore, and that the Board should not adopt the contract system.
11	Sept. 9.	Communication of the Architect in Chief (Olmsted) with regard to details of the walks and rides laid out in the Park.
12	" 16.	Communication of the President (Green) to the Common Council as to the construction of the avenues adjoining the Park; their width, the projections and erections upon them, and their drainage; and recommending the extension of the Park to 110th Street.
13	Dec. 9.	Ordinance of the Common Council to provide a further sum for the improvement of the Central Park.
	1859.	
	January 1.	Second Annual Report, for the year 1858, with detailed statement of expenditures; description of the plan of the Park; report of the Engineer (Grant) on the evaporation and filtration of water on the Park; statements as to the drainage and analyses of the soils.
14	January 14.	Communication to the Common Council on the sewerage of the Park.

No. of Doc.	1859.	
15	January 14.	Communication to the Common Council on the subject of procuring surplus earth from Hamilton square.
16	"	Memorial to the Legislature requesting amendments to the law to increase the efficiency of the Commissioners; to make the Board of Commissioners a corporation; to allow the President and Treasurer to receive compensation; to provide additional improvement fund; to provide for the appointment of a police force; to extend the Park to 110th Street; and to widen Seventh avenue from 110th street to Harlem river.
17	January 29.	Draft of Annual Report to the Common Council.
1	July 7.	Report of Architect in Chief and Superintendent (Olmsted) upon the changes made in the original plan and their cost.
2	July 21.	Report of Special Committee upon present expenditure, with estimate of amounts required to complete the present undertakings.
3	October 20.	By-Laws as amended.
4	Dec. 31.	Report of Architect in Chief and Superintendent (Olmsted) on his visit to European parks.
	1860.	
	January 2.	Third Annual Report, for the year 1859, with Report of the Engineer (Grant), and Statement of the Draining Engineer (Waring).
5	March 21.	Chap. 85 of 1860, passed 19th March, for the construction, regulation, maintenance and government of Central Park, and to provide additional means therefor.

No. of Doc.	1860.	
6	April 26.	Report of Architect in Chief (Olmsted) on the subject of the permanent provision of refreshments in the Central Park, recommending the erection of a refectory, the dairy, and other refreshment houses; and also recommending a carriage service.
1	May 3.	Report of Architect in Chief and Superintendent (Olmsted) on cost of transverse roads.
2	May 24.	Report of Architect in Chief and Superintendent (Olmsted) on the quantity of brick, sand, cement and lumber required for the remainder of the year.
3	June 7.	Report of Architect in Chief (Olmsted) of the work expedient to be prosecuted during the remainder of the year.
4	July 12.	Report of Special Committee on Entrances on Fifty-ninth street, recommending that those on Sixth and Seventh avenues be made the principal entrances architecturally.
5	August 30.	Opinion of the Counsel to the Corporation on the constitutional validity of the Acts of 1857 and 1860.
	Dec. 31.	Fourth Annual Report, for the year 1860, with the opinions of Judges Mitchell and Harris on the application relative to the laying out of the Central Park; report of the Special Committee of the Senate appointed to examine the condition of affairs and progress of the Central Park; ordinances for the government of the Central Park.

No. of Doc.	1861.	
6	April 24.	Chapter 88 of 1861. Act of the Legislature amending the previous Acts relating to the government of the Central Park, and fixing the term of office of the Commissioners.
	Dec. 31.	Fifth Annual Report for the year 1861, with a topographical description of the Central Park and a report on the nomenclature of the gates.
	1862.	
1	April 10.	Chapter 46 of 1862. Act authorizing the New York Historical Society to occupy the Arsenal for the purpose of establishing therein a museum of antiquities and science, and a gallery of art.
2	"	Report of Committee on the nomenclature of the gates of the Park.
3	"	By-Laws as amended.
1	Dec. 23.	Communication to Common Council requesting the appropriation of further funds for proceeding with the work in Central Park.
	" 31.	Sixth Annual Report for the year 1862, with description of Terrace.
	1863.	
2	Jan. 26.	Report of Committee recommending construction of an enclosing wall around the Park.
1	May 14.	Statement of the Comptroller concerning the finances, the force employed, and the condition and progress of the Park.
	Dec. 31.	Seventh Annual Report for the year 1863, with opinion of Judge Ingraham relative to the

No. of Doc.	1864.	
		taking of land for the extension of the Park to 110th Street, and a Catalogue of Trees, Shrubs, and Plants, with the months of flowering or fruiting.
1	May 12.	Chapter 275, of 1864, Act amending the Act of 1859, relative to the widening of Seventh avenue, above 110th street.
2	" "	Chapter 319, of 1864, Act annexing Manhattan square to the Central Park.
3	Nov. 19.	Statement from the Comptroller of the Park (Green), relative to the present condition of work, the prosecution of new work and estimate of the cost thereof.
	Dec. 31.	Eighth Annual Report for the year 1864, with the First Report relative to the Zoological Collection, and the first statement of the condition of gifts, devises and bequests.
	1865.	
4	Feb. 21.	Chapter 26 of 1865. Act for the Improvement, &c., of the Central Park and to provide additional means therefor.
1	May 11.	Chapter 564, of 1865. Act for the Improvement of part of the City of New York between 110th street and the Harlem river.
2	" "	Chapter 581, of 1865. Act discontinuing part of Croton Aqueduct and establishing Eighth avenue grade.
3	May 10.	Report of the Committee on the subject of the appropriation of the Arsenal for the use of the New York Historical Society, rec-

No. of Doc.	1865.	
		ommending such appropriation under certain conditions.
4	June 10.	Chapter 565, of 1865. Act to provide for laying out the Boulevard and of that part of the island north of 155th street.
	Dec. 30.	Ninth Annual Report for the year 1865, with statement concerning the Zoological Garden of London; the authorization for the laying of the foundation of the Shakespeare monument; tabular arrangement of the Vertebrata of North America; and a Supplemental Catalogue of Plants in Central Park.
	1866.	
5	Feb. 26.	Report of Committee on the plan for the building for the New York Historical Society on the Park.
6	" "	Report of the Comptroller of the Park (Green), relative to the persons in the employ of the Commissioners.
7	Jan. 11.	Report of Comptroller of the Park (Green), relative to changing the grade of the Eighth avenue, from Fifty-ninth to Ninety-second street; and the improvement of Sixth and Seventh avenues; also as to the laying out that part of the island above 155th street, and the public drive on the Boulevard.
1	May 3.	Chapter 367, of 1866. Act relative to the laying out of Avenue St. Nicholas and Manhattan street.
2	" "	Chapter 550, of 1866. First west side act.

No. of Doc.	1866.	
3	May 3.	Chapter 632, of 1866. Act establishing Eighth avenue grade.
	" "	Chapter 757, of 1866. Act widening Broadway, between Fifty-seventh and Fifty-ninth streets.
	Dec. 31.	Tenth Annual Report for the year 1866, with communication of the Comptroller of the Park (Green), relative to laying out the island above One hundred and fifty-fifth street, the Boulevard and other subjects; also description of the design for a zoological garden on Manhattan square.
	1867.	
5	Feb. 14.	Report of the Committee on Site for the Seventh Regiment memorial, recommending a location near the Warrior's Gate.
	Dec. 31.	Eleventh Annual Report for the year 1867, with the first Meteorological Report, with tables; a circular to school teachers on the advantages of the Park for children; communication and Report of the Comptroller of the Park (Green) on the treatment of the "West Side," with a plan for the same.
	1868.	
1	May 14.	Chapter 288 of 1868. Act approving the pier and bulk-head lines as laid out by the Commissioners.
	Dec. 31.	Twelfth Annual Report for the year 1868, with correspondence relative to the statue of the Indian Hunter. A list of birds inhabiting the Park. Notes on the educational

No. of Doc.	1869.	
		department of the Park. Correspondence and report on fossil restorations. Communication of the Comptroller of the Park (Green) relative to Westchester county, Harlem river and Spuyten Duyvil creek.
1	May 13.	Chapter 350, of 1869. Act authorizing the erection of Soldiers and Sailors' monument.
2	" "	Chapter 595, of 1869. Act authorizing the erection and maintenance of Observatory in the city of New York.
3	" "	Chapter 826, of 1869. Act for the Improvement of certain parts of Westchester county, Harlem river and Spuyten Duyvil creek.
4	June 17.	Chapter 890, of 1869. Broadway widening act.
5	" "	Chapter 689, of 1869. Act to establish a public place at Sixty-third street, Ninth avenue and Boulevard.
	Dec. 31.	Thirteenth Annual Report for the year 1869, with correspondence as to the Museum of Natural History. Paper on the watering of roads. Correspondence relative to the Columbus statue and the Humboldt bust. Paper on Park entrances. Correspondence on the subject of a parade ground.
	1870.	
	April 20.	Fourteenth (and last) Report of the Commissioners for the period from 1st January to 20th April, 1870, with the address of the Commissioners to the People of the City and State of New York. Proceedings of the

No. of Doc.	1870.	
		Humboldt Centennial. Communication of the Comptroller of the Park (Green), on the improvement of Westchester county, &c.
1	May 6.	Chapter 593, of 1870. Act establishing the grade of Eighth avenue.
2	“ “	Chapter 44, of 1870. Act laying out part of One hundred and thirty-sixth street.
3	“ “	Inventory of property in possession of employes of the Department.
4	May 9.	Chapter 626, of 1870. Act authorizing the Department to lay out the eastern Boulevard.
5	May 19.	Report of the Engineer (Kellogg), on completing the Boulevard, so as to furnish a convenient roadway from Fifty-ninth street to One hundred and eighth street.
6	May 24.	Report of the Comptroller (Van Nort), on the cost of structures in progress on the Central Park.
7	“ “	Chapter 797, of 1870. Passed May 19th, authorizing the Department to lay out and improve Westchester county and the Harlem river. (Repealed, Chapter 534, 1871.)
8	“ “	Report of the Engineer (Kellogg) on construction of enclosing walls of the Central Park.
9	May 31.	Report of Architect in Chief (Mould) on cost of completing structures in progress.
10	“ “	Report from Landscape Architects (Olmsted & Vaux) relative to the works in progress on their designs.

No. of Doc.	1870.	
11	May 31.	Correspondence with the American Museum of Natural History relative to the collection of that society in the Arsenal building.
12	“ “	Inventory of tools in the possession of keepers of the Central Park, and in the office of the Architect in Chief.
13	Jan. 7.	Report of Landscape Architects (Olmsted, Vaux & Co.,) relative to works in progress on their designs.
14	“ “	Clerk's Report on unfinished engagements of the late Board.
15	Oct. 4.	Report of the Engineer (Kellogg) on the adaptation of the Park to the change of grade of the Eighth avenue.
16	Nov. 22.	Report of Civil and Topographical Engineer (Grant) on the organization of his bureau and the work in progress.
17	“ “	Estimate of amounts required to complete surveys in Yonkers and West Farms.
18	“ “	Report of Executive Committee as to the grade of Fourth avenue, between Eightieth and Eighty-ninth streets.
19	“ “	Report of Comptroller (Van Nort) submitting list of contributions to the zoological collection.
20	Dec. 6.	Ordinance of Common Council to create funds for the improvement of Central Park.
21	“ “	Ordinances respecting the uses of streets and avenues within the distance of 350 feet from the boundary of the Central Park.

No of Doc.	1871.	
22	April 8.	Chapter 290, of 1871. Act creating Central Park improvement fund; authorizing the appointment of a force of keepers; discontinuing Fort Washington Park and a certain new avenue between Avenue St. Nicholas and the Tenth avenue, and giving exclusive power to the Department to acquire title to streets and avenues, and public places north of Fifty-ninth street.
23	" "	Chapter 534, of 1871. Act for the improvement of parts of Westchester county, Harlem river, &c.
24	" "	Chapter 628, of 1871. Act to establish a parade ground in the city of New York.
25	" "	Communication from Shultz & Walker relative to the sale of the Mineral Spring buildings to the Department.
26	" "	Report of the Captain of the Park Keepers (Mills) on the number of the force.
27	" "	Report of the Engineer (Kellogg) on the Battery wall, recommending that it be repaired.
28	" "	Communication from the Department of Docks as to respective jurisdiction over certain portions of the water front of the city.
29	" "	Report of Engineer (Kellogg) with surveys, plans and maps of Morningside Park.
	May 1.	First Annual Report of the Department of Public Parks for the year ending 1st May, 1871, with a legal history of the Department jurisdiction. Report on the site for

No. of Doc.	1871.	
		Zoological and Botanical Garden (Manhattan square). Report on the water supply of lower Westchester county. Specifications for surveys and maps of the Westchester district.
30	Nov. 25.	Report of the Comptroller of the Department (Van Nort) on condition of accounts and liabilities of the Department, works in progress, with a list of employes.
31	Dec. 9,	Communication to Supervisor of Westchester county relative to surveys of that county.
32	Dec. 12.	Report of Surgeons of Park-keepers (Hilton and Nesmith), giving a summary of their work during the year.
33	" "	Statement of expenditures of the Department from April 20th, 1870, to 22d of November, 1871.
	1872.	
34	March 6.	Communication from S. B. Parsons in relation to the trees on the Central Park,
35	March 27.	Communication from Landscape Architects (Olmsted & Vaux) in relation to a review of the plan of Union square, providing an area for public meetings at its north end.
36	May 16.	Communication from Landscape Architects (Olmsted & Vaux) relative to the communication between the Terrace and Reservoir; and on the deficiency of shade on the drives and walks.
37	May 22.	Report of a Board of Engineers on concrete pavements.

No. of Doc.	1872.	
38	June 19,	Chapter 878, of 1872. Act repealing act relative to the improvement of parts of Westchester county, so far as it relates to towns of Eastchester and Westchester.
39	July 17.	Report of Treasurer (Olmsted), on Wages.
	August 21.	Second Annual Report for the year ending 1st May, 1872, with an account of the disaster to the trees in March, 1872, with tables; and two letters from the Landscape Architects (Olmsted & Vaux), reviewing the recent changes and projected changes in the plan of the Central Park.
40	Oct. 16.	Communication from the President (Olmsted) on location of a parade ground.
41	Oct. 24.	Communication from the Treasurer (Olmsted), relative to the police and its reform.
42	Nov. 20.	Report of the Director of the Menagerie (Conklin), of his European tour.
	1873.	
43	March 31.	General order for the organization and routine of duty of the keepers' service of the Central Park, and conditions of holding appointments in the force. Observations on the conduct required of the keepers; and ordinances applicable to the ordinary use of the Central Park.
		Supplement containing instructions to extra keepers and night-watchmen.
44	June 23.	Report of the Landscape Architect (Olmsted), exhibiting the present standing of the princi-

No. of Doc.	1873.	
		pal undertakings of the department under his supervision.
45	June 25.	Report of the Civil and Topographical Engineer (Grant), relative to the condition of all the works under his direction.
46	July 17.	Report of the Special Committee on Statues and Monuments, recommending for adoption rules to govern the question of accepting and disposing of them.
47	“ “	Report of the Landscape Architect (Olmsted), on the reason for the changes recently made in the management of the keeper force.
48	August 27.	Opinion of the Counsel to the Corporation as to the proper method to raise money to defray the expenses of laying out the north end of the island.
49	Sept. 10.	Statement of facts connected with the contract of the mason work of the Museum of Natural History, and the opinion of the Counsel to the Corporation on the same.
50	Oct. 11.	Report of the Landscape Architect (Olmsted), on the improvement of Morningside Park, with a preliminary study of a design for laying out the same, and the estimate of the cost of carrying the same into effect.
51	“ “	Report of the Landscape Architect (Olmsted), on the disposition of the zoological collection of the Department.
52	Nov. 20.	Communication of Dexter A. Hawkins on the subject of Kingsbridge road.

No. of Doc.	1873.	
53	Dec. 3.	Report of the President (Wales), on the law relative to the books and documents of the Department, and allowing the inspection of the same by citizens.
	Dec. 31.	Third General Report for the period of twenty months, from 1st May, 1872, to 31st December, 1873, with Reports of the Landscape Architect (Olmsted), on the proposed new system of walks in the southeast quarter of the Park and on the preliminary plan for Riverside park and avenue. Chronological table of the progress of the Central Park. List of printed documents, with a synopsis of their contents. Tables of areas of parks and places. List and index of trees, shrubs and plants in the Central Park.

III.

A List of the Commissioners from the organization of the Board in 1857, *to the present date* (31*st December*, 1873), *with their terms of office:*

Robert J. Dillon,	17th April, 1857, to 21st October, 1858. 24th April, 1870, to 26th November, 1872.
James E. Cooley, President.	17th April, 1857, to 5th January, 1858.
Charles H. Russell,	17th April, 1857, to 20th April, 1870.
John F. Butterworth,	17th April, 1857, to 20th April, 1870.
John A. C. Gray, Vice-President.	17th April, 1857, to 3d February, 1862.
Waldo Hutchins,	17th April, 1857, to 20th April, 1870.
Thomas C. Fields, Secretary.	17th April, 1857, to 13th January, 1873.
Andrew H. Green, Pres., Vice-Pres. and Treas.	17th April, 1857, to May, 1873.
Charles W. Elliott, Secretary and Treasurer.	17th April, 1857, to 7th April, 1860.
William K. Strong,	17th April, 1857, to 3d February, 1862.
James Hogg,	17th April, 1857, to 21st April, 1859.
August Belmont,	16th March, 1858, to 3d February, 1862.
Henry G. Stebbins, Pres., Vice-Pres. and Treas.	21st April, 1859, to 20th April, 1870. 22d November, 1871, to 28th May, 1872. 23d October, 1872. to date.

Rich'd M. Blatchford,	21st April, 1859, to 20th April, 1870.
President.	3d December, 1872, to May, 1873.
Moses H. Grinnell,	19th April, 1860, to 20th April, 1870.
Vice-President.	
Peter B. Sweeny,	15th April, 1870, to 22d November, 1871.
President.	
Henry Hilton,	15th April, 1870, to 22d November, 1871.
Vice-President and Treasurer.	
Frederick E. Church,	22d November, 1871, to May, 1873.
Fred'k Law Olmsted,	29th May, 1872, to 23d October, 1872.
President and Treasurer.	
Salem H. Wales,	13th January, 1873, to date.
President.	
Philip Bissinger,	26th May, 1873, to date.
David B. Williamson,	16th June, 1873, to date.
Treasurer.	
Samuel Hall,	21st June, 1873, to date.

IV.

Statistics of Areas and Distances in the Central Park, general and by topographical divisions, and, respectively, of Meadow Surfaces, of Wooded Ground, of Waters, of Carriageways, of Ridingways, of Walks, of Buildings, of Seats and of Bridges and Arches :

The Central Park (exclusive of Manhattan Square) measures, from north to south (Fifty-ninth street to One hundred and Tenth street), 13,464 feet 10 inches,* or 265 feet over two and one-half miles; in breadth, 2,719 feet, or 79 feet over half a mile. The area within these bounds measures 840 acres, of which 152 acres are not part of the Park, viz., 143 acres occupied by the reservoirs of the city water works, and nine acres by the transverse roads (public highways for ordinary street traffic which cross the Park at a lower level than the Park drives). Five acres have also been appropriated to buildings foreign to the purpose of the Park, leaving of ground for rural recreation 683 acres.

Exterior to the bounds of the Park proper, but generally divided from it only by a low parapet, is to be a shaded walk, six and one-sixth miles in length, and from 20 to 40 feet in breath: no part of it is yet in finished condition, but a length of 7,850 feet (a mile and a half) is planted and in use, as shown by the map. Exterior to the Park, but associated with it, there is a public property formerly known as Manhattan square, upon which the buildings of the American Museum of Natural History are to be situated. There are also two small places at the Scholar's and the Merchant's Gates, occupying together 2.40 acres. These several areas, added to that within the boundaries of the Central Park, make a total of contiguous public grounds of 879.18 acres.

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* This measurement is to the outer face of the enclosing walls; the length stated in previous reports is the measurement to the boundaries of the Park as acquired by the City.

MEADOW GROUND.

Of fair meadow surface unbroken by ledges and unshaded by trees, there are six spaces of one acre or more in extent, the whole of such surface on the Park being 55 acres.

Of these spaces there are:

In "the North Meadows"	19	acres.
In "the Green"	16	"
In "the Ball Ground"	10	"
In the other three	10	"
There are also of small glades and openings in the woody parts, about	54	"

WOODED GROUND.

There are covered with woods, groves and shrubbery (including the unfinished parts designed to be planted), the greater part of which is of broken surface, and nearly all, except the narrow wooded borders of the meadows, of inclined surface, about 400 acres.

The number of hardy trees and shrubs and woody vines which have been set out in the Central Park is between four and five hundred thousand, of which 260,000 had been planted before 1865, and 140,000 have been planted since 1870; the latter being chiefly of underwood and trees on border parts of the Park, the grading of which was previously incomplete. The planting between 1864 and 1870 is supposed to have been about equal to the losses and removals. There are now about 20,000 hardy woody plants in the Park Nursery, chiefly rooted cuttings. During the last three years 50,000 hardy perennial plants have been propagated and planted out on the Park, and 160,000 hardy ferns and common wild plants of the woods and swamps have been collected and planted out upon it.

WATERS.

The total area of water is $43.\frac{259}{1000}$ acres; of which "the Lake" takes $20.\frac{167}{1000}$; "Harlem Meer," $12.\frac{654}{1000}$; "The Pond," $4.\frac{800}{1000}$; "Conservatory Water," $2.\frac{579}{1000}$; "The Pool," $2.\frac{013}{1000}$, and "The Loch," $1.\frac{016}{1000}$.

CARRIAGEWAYS.

The length of carriageway, not including the transverse roads, is $9.\frac{435}{1000}$ miles Its breadth varies from 60 feet to 15 feet (a short by-road only being less than 30), the average breadth being 54 feet. The area occupied by the carriageway, including spaces for carriages in waiting, is $51.\frac{615}{1000}$ acres.

RIDINGWAYS.

The length of ridingways is $5.\frac{503}{1000}$ miles; the average breadth, 16.5 feet, and the area $15.\frac{371}{1000}$ acres.

WALKS.

The length of walks is $28.\frac{252}{1000}$ miles; the breadth from 4 to 40 feet; the average breadth being 13 feet, and the area 39.3 acres.

BUILDINGS.

Including offices, shops, &c., there are thirty-one buildings and groups of buildings on the Park. Three of these are old buildings retained for temporary use; twelve are of rustic work, constructed chiefly of small logs of sassafras and red cedar. With twenty-two archways, the extent of tightly-roofed space available for shelter to the public in showers is 175,000 square feet, which, at the rate of one person to 3½ square feet, will accommodate 50,000 persons: there is one such place of shelter, on an average, in each space of ten acres. They are generally provided with seats and drinking fountains.

There is also of flooring, shaded with vines on trellises, 17,000 square feet.

SEATS.

Outside the walled houses there is seating provided on the Park for 9,550 persons, of which the accommodation for 600 is in the form of fixed seats, generally covered with rustic roofs or vine-covered trellises, and that for 8,950 in the form of iron-framed settees with wooden-slat seats, generally placed in the shade of trees or tents.

BRIDGES AND ARCHES.

There are forty-six bridges, archways and tunnels on the Park, of which twelve carry the Park over the transverse roads, being spans of forty feet, and of the average length of one hundred and nineteen feet, having the character of tunnels, and designed to sustain plantations which will screen the roads below. These (indicated by capital letters on the map) are all constructed of brick and granite (syenite), except one (the tunnel) which is an excavation of rock in place; of the remainder six are of stone, twenty-four of stone and brick, four of stone and iron, three of iron, two of stone and wood, and six of wood. Further particulars are given in the following table:

ARCHWAYS AND BRIDGES.

No.	Name.	Kind of Material.	Style of Arch.	Span of Arch.	Height of Arch or Girder above Road, Walks or Water.	Length of Passage under.	Length of Balustrade.
				Ft. In.	Ft. In.	Ft. In.	Ft. In.
1	Terrace	Stone, iron girders	....	29. 0	16. 0	....	....
2	Driprock Arch	Stone and brick	Elliptical	24. 0	11. 0	65. 0	79. 8
3	Willowdell Arch	Stone and brick	Segmental	14. 0	9.10	47. 6	60. 0
4	Balcony Bridge	Stone	Cycloid	27. 0	11. 6	65. 1	100. 0
5	Bow Bridge	Abutments stone, bridge iron	Elliptical	87. 4	9. 6	15. 8	142.10
6	Dalehead Arch	Stone and brick	Elliptical	24. 0	11. 0	80. 0	76.11
7	Denesmouth Arch	Stone	Elliptical	37. 3	14. 0	47. 0	130. 0
8	Glade Arch	Stone and brick	Elliptical	29. 6	10. 0	50. 7	95. 1
9	The Marble Arch	Stone	Segmental	15. 4	10. 6	75.11	88. 8 58. 8
10	Bankrock Bridge	Abutment stone, rustic wood.	....	55.11	6. 5	14.0	73. 0
11	Green Gap Arch	Stone and brick	Segmental	25. 0	13. 3	81. 3	101. 6
12	Trefoil Arch	Abutment stone, iron girders.	Circular	19. 3 15.10	11. 9	66. 0	110. 9
13	Greyshot Arch	Stone and brick	Elliptical	30. 6	10. 1½	80. 3	100. 2
14	Playmates' Arch	Stone and brick	Elliptical	17. 8	9.11	66. 0	63. 0
15	Pinebank Arch	Abutment stone, bridge iron.	Segmental	60. 0	11. 0	15.10	85. 6
16	Dipway Arch	Stone and brick	Segmental	15. 9	11. 7	50. 9	27. 8
17	Winterdale Arch	Stone and brick	Elliptical	45. 6	12. 3	53. 8	65. 0
18	Riftstone Arch	Rustic, stone arch	Segmental	30. 0	11. 9	35. 0	100. 0
19	Spur-rock Arch	Cast iron arch	Elliptical	25. 0	12. 6	14. 7	88.10
20	....	Rustic stone	Circular	5. 0	13. 6	9. 0	32. 0
21	Gill Bridge	Rustic wood	....	10.10	2. 4	15. 7	21. 5
22	....	Rustic wood	....	13. 5	5. 4	13. 3	34. 6
23	Greywacke Arch	Stone and brick	Bi-segmental.	18. 3	11. 3	56. 0	31. 0
24	....	Stone and brick	Elliptical	17. 6	10. 5	68. 0	49. 0
25	Springbanks Arch	Stone and brick	Elliptical	17. 5	9. 2	71. 0	72. 8
26	The Glen Span	Stone and brick	Segmental	36. 0	11. 6	15. 2	51. 0
27	....	Iron	Segmental	38.10	10. 9	14. 3	73. 6
28	....	Iron	Elliptical	37. 6	13. 0	14. 3	91.10
29	Huddlestone Bridge	Rustic stone	Elliptical	22. 0	10. 0	36. 0	52. 6
30	....	Rustic wood	....	....	....	....	....
31	....	Rustic wood	....	....	....	....	....
32	....	Rustic wood	....	....	....	....	....
33	Inscope Arch*	Stone and wood	....	14. 0	12. 0	100. 0	36. 0
34	Outset Arch*	Iron	....	60. 7	14. 0	17. 2	100. 0

* Ordered.

TRANSVERSE ROAD ARCHWAYS.

No.	Kind of Material	Style of Arch.	Span of Arch.	Height of Arch above Road.	Length of Passage under.
			Ft. In.	Ft. In.	Ft. In.
A	Brick and stone	Elliptical	40. 0	14. 9	171. 0
B	do. do.	do.	do.	do,	130. 0
C	do. do.	do.	do.	do.	50. 0
D	do. do.	do.	do.	do.	130. 0
E	do. do.	do.	do.	do.	156. 0
F	do. do.	do.	do.	do.	126. 0
G	do. do.	do.	do.	do.	80. 0
H	do. do.	do.	do.	do.	112. 0
I	do. do.	do.	do.	do.	115. 0
J	do. do.	do.	do.	do.	95. 0
K	do. do.	do.	do.	do.	145. 0
	Tunneled rock in place	Circular	do.	18.0	150. 0

V.

TABLE *showing the Locality and Areas of the Parks and Places of New York.*

NAMES.	LOCALITY.	AREAS. Acres.	AREAS, including street spaces surrounding. Acres.
Abingdon	West 12th street and Eighth avenue	0.202	2.197
	Avenue St. Nicholas and 123d street	0.072	1.551
	Avenue St. Nicholas and 137th street	0.038	1.199
Battery	Bet. Battery pl., State and Whitehall sts	21.199	27.338
Beach Street	Cor. of Beach st. and West Broadway	0.038	0.996
	Boulevard and 63d street	0.344	3.021
	Boulevard and 66th street	0.069	2.350
Bowling Green	Bet. Broadway and Whitehall street	0.517	1.836
Canal Street	Corner Canal and West streets	0.318	2.681
Central Park, with Manhat. Sq.[*]	Bet. Fifth & Eighth avs., 59th to 110th st.	858.972	937.682
Christopher Street	Corner Bleecker and Christopher sts	0.139	0.663
City Hall	Bet. Broad'y, Chambers st. & Park row	8.234	13.514
Cooper Institute	Cor. of Fourth avenue and 7th street	0.224	2.891
Duane Street	Cor. of Duane and Hudson streets	0.108	1.096
Five Points	Cor. of Park and Worth streets	0.114	0.764
Grand Street	Cor. of Grand st. and East Broadway	0.063	1.041
High Bridge	Tenth avenue and 173d street	23.380	28.762
Jackson	Eighth avenue and 13th street	0.227	1.499
Madison	Bet. Fifth & Madison av., 23d to 26th sts.	6.840	11.917
Morningside	Bet. Ninth & New av., 110th to 123d sts.	31.238	47.848
Mount Morris	Bet. 120th and 124th sts., Fifth avenue	20.174	26.464
	New avenue and 114th street	0.018	0.814
Park Avenue	Park avenue, from 34th to 40th street	1.165	5.286
Reservoir	Sixth avenue, from 40th to 42d street	4.775	7.595
Riverside	Along Hudson river, from 72d to 129th st.	89.380	177.860
Sixth Avenue	Sixth avenue, 32d and 35th streets	0.186	3.796
Stuyvesant	Second avenue, 15th to 17th street	4.229	7.284
Tompkin's	Avenue A to B, bet. 7th and 10th sts	10.508	14.568
Union	Bet. Broad'y & Fourth av., 14th to 17th st	3.483	10.712
Washington	Bet. Fourth st. and Waverly pl., Worth and McDougal	8.115	13.657
Total of all parks		1,094.020	1,358.782
Central Park		858.972	937.682
Riverside Park		89.380	177.860
Morningside Park		31.238	47.848
Small parks		114.430	195.392
		1,094.020	1,358.782

[*] See p. 338.

VI.

A Statistical Comparison of Public Grounds for New York and for Paris.

The area of New York as now laid out and in process of laying out in streets and town lots, under the Department of Public Parks, including the recent annexation from Westchester county, is about forty-two square miles. The area of Paris, as similarly laid out, within the line of its defensive works, is about twenty-eight square miles.

The small parks and places, each over an acre in extent, within the walls of Paris, have a total area of about 250 acres. Adding the two nearest and most frequented of the great suburban parks, viz., the Bois de Boulogne and the Bois de Vincennes, but not including the pleasure grounds of Versailles, St. Cloud and many others without, nor numerous promenades in the form of avenues and double and quadruple avenues within the walls, there are open and conveniently situated for the daily use of the people of Paris 4,565 acres of public parks.

The small parks and places of New York, and reservations for the same, (under thirty and over one acre in extent) have together an area of 112 acres. With the Central and the proposed Riverside and Morningside Parks, this forms a total area of 1,094 acres, being at the rate of 23½ acres to the square mile; the rate of Paris being 163 acres to the square mile.

There are no suburban parks for New York corresponding to those at Versailles, St. Cloud, Meudon, Fontainebleau, &c.

The extent of pleasure drives in the public parks and grounds of Paris, not including Versailles and other distant suburban parks, is 87 linear miles, being about three to each square mile ot city. The extent of such drives in the public parks of New York is 9¾ miles, being less than one-quarter of a linear mile to the square mile of city.

The length of shaded boulevards and grand avenues, intended and adapted, by borders of trees and shrubbery, seats, walks, or character of pavement, special arrangements in lighting, and occasional decorations, to serve as recreative promenades as well as streets, is in Paris 117 miles. In New York there are of "boulevards," partly prepared with a partially similar intention, 8 miles.

Total of pleasure drives for Paris, as above defined, 204 miles.

Total of pleasure drives for New York, as above defined, 17 miles.

The drives, ridingways, and walks of the Central Park are generally wider than those of the Paris parks, the larger part of the drives being from 45 to 50 feet, the ridingways 25 to 30 feet, and the walks 12 to 16 feet, while in the Bois de Boulogne the larger part of the drives are less than 40 feet, the ridingways 12 to 17 feet, and of walks 8 to 12 feet. The widest carriageway in the Bois de Boulogne, except on the routes for general traffic passing through it, is 48 feet wide; the widest on the Central Park 60 feet.

VII.

A Tabular Comparison of Areas and Distances in the Central Park, Bois de Boulogne, Bois de Vincennes and Hyde Park.

	BOIS DE BOULOGNE.	Percentage of Total Area.	BOIS DE VINCENNES.	Percentage of Total Area.	HYDE PARK WITH KENSINGTON GAR.	Percentage of Total Area.	CENTRAL PARK.	Percentage of Total Area.
Total area............	Acres....2,290*	......	Acres ....2,225†	......	Acres...654‡	......	Acres...683§	......
Drives, length........	Miles....36.	......	....	......	Miles.... 4.42	......	Miles.... 9.05	......
Rides, do.	do. 7.2	......	....	......	do. 1.68	......	do. 5.5	......
Walks, do.	do. 15.5	......	....	......	do. .. 28.03	......	do. 28.25	......
Public drives, rides and walks, not including race course	Acres....285.33	13.65	do ...182.75	8.21	Acres...104.35	15.8	Acres...105.	15.25
Woods................	do. ..1,009.	48.27	do. ...812.	36.50	do ...242.62	37.1	do. ...400.	58.17
Unshaded turf.........	do. .. 674.	32.25	do. ..731.	32.76	do ...256.84	39.4	do. ...109	15.95
Exposed rock.........	....	......	....	......	....	......	do. ... 24.	3.5
Standing and running waters......	do. .. 75.5	3.6	do. ... 59.25	2.66	do. ... 48.9	7.5	do. ... 44.	6.4

* Including the race course of Longchamps, (195 acres); the zoological ground, (50 acres); and amusement gardens, leased, (21 acres).

† Including the race course, (193.33 acres); the amusement gardens, leased, (440 acres); and the ground for military exercises, (486.25 acres), but not the barracks, etc,

‡ Not including the palace, barracks and other military premises.

§ Not including the City Water Works, the sunken roads and the Museum premises

VIII.

Situations and Distances of Points in the Central Park and other parts of the City of New York.

	Miles.
1. The length of the City of New York, from its extreme northern end at Yonkers to its extreme southern end at Whitehall pier is..............	16.02
2. The length of Manhattan Island from north to south is......................................	13.63
3. The centre of the line from the extreme north to the south of the city is at a point between One hundred and fifteenth and One hundred and sixteenth streets, near Sixth avenue.	
4. The centre of the line from north to south of Manhattan Island is at a point 560 feet north of the northern line of the Transverse road, No. 3, Central Park, and 1,300 feet in the continuation of the north side of Eighty-ninth street from Eighth avenue.	
5. The centre of population (1874) is at Washington statue in Union square.	
6. The centre point of the Central Park is at a point 60 feet east of the line M, and 25 feet north of line 67, of the map herewith published.	

		MILES.
7.	Its bearing and distance from the centre of the city is 32° 30′ southwest....	$1\frac{416}{1000}$
8.	Its bearing and distance from the centre of the island, 25° 36′ southwest....	$0\frac{242}{1000}$
9.	Its bearing and distance from the present centre of population, 23° 5′ northeast....	$3\frac{174}{1000}$
10.	Distance between Central Park and Madison square,	$2\frac{065}{1000}$
11.	Distance between Central Park and Union square,	$2\frac{515}{1000}$
12.	Distance between Central Park and City Hall Park,	$4\frac{317}{1000}$
13.	Distance between Central Park and Battery....	$5\frac{083}{1000}$
14.	Distance between Central Park and Harlem river, *via* Eighth avenue....	$2\frac{251}{1000}$
15.	Distance between Central Park and King's Bridge, *via* Avenue St. Nicholas and Kingsbridge road,	$6\frac{535}{1000}$
16.	Distance between Central Park and centre of population....	$2\frac{714}{1000}$

IX.

Statement of the Quantity of certain Classes of Work done and of Materials used in the Construction of the Central Park, exclusive of Operations on the General Water Works of the City.

The quantity of material handled in grading, fertilizing and building has been four millions, eight hundred and twenty-five thousand (4,825,000) cubic yards, or nearly ten millions of ordinary city one-horse cart-loads, which, in single file, would make a procession thirty thousand (30,000) miles in length. Of the above amount 4,140,000 cubic yards were of the original ground material of the Park, and the change in place of this has been equal to the lifting and re-arrangement of all the ground to a depth of three and three-quarters ($3\frac{3}{4}$) feet; four hundred and seventy-six thousand (476,000) cubic yards of rock (besides small boulders) have been excavated, removed and reset, and, in the blasting out of this quantity, twenty thousand eight hundred (20,800) barrels (25 lbs. each) of gunpowder have been used.

Two hundred and seventy-two thousand (272,000) cubic yards of masonry have been laid, chiefly of first-class building stone, one-third of it in curved work. More than half the stone has been quarried on the Park. All the masonry laid is equal to twenty-seven (27) miles in length of ordinary four-story house front, sixteen inches thick. The larger part of it is either under ground or below the level of the eye and concealed from observation.

One hundred and fourteen (114) miles of subterranean channels have been laid in the Park, of which thirty-three (33) miles consists of close-jointed sewer pipe, and nineteen (19) miles of metallic pipe, the remaining sixty-two (62) miles being nearly all cylindrical earthenware tile laid with collars. Over ten miles of curbing has been set on curves, vertical and horizontal, of constantly varying radius. In the study of the plans and for the guidance of the operations fourteen thousand (14,000) drawings (maps, tracings and copies included) have been prepared, and a million and a half stakes set.

X.

A LIST OF CERTAIN CLASSES OF PLANTS ON THE CENTRAL PARK IN 1873, PREPARED BY ROBERT DEMCKER, LANDSCAPE ARCHITECT.

1. Deciduous Trees and Shrubs.
2. Evergreen and "American" Plants.
3. Coniferous Plants.
4. Perennial and Alpine Plants.
5. Exotic and Tender Plants.

1.—*Deciduous Trees and Shrubs growing exposed on the Park in* 1873, *with an indication of the locality in which a specimen of each may be found.*

[Note.—Those marked with an * have not proved hardy. W. L. F., 1875.]

	A. POLYPETALÆ. Leguminosæ (Papilionaceæ).	Locality. (Reference to Map.)
1	Acacia Farnesiana.* Rogl	188 V, 107 V.
2	Gymnocladus Canadensis. Lam	4 G, 20 P, 43 R, 67 R.
3	Cladrastis tinctoria. Mchx. (Virgilia)	106 V.
4	Gleditschia triacanthos. L	7 Z^1, 6 O, 28 B, 105 V.
5	" horrida, Hort	120 W.
6	" inermis Mill	7 O, 120 V, 69 S.
7	Sophora Japonica. L	49 R, 68 V, 125 V.
8	" " pendula. Hort	120 U.
9	Cercis siliquastrum. L	118 W.
10	" Canadensis. Willd	2 O, 19 Y, 130 Z^1, 125 V.
11	" Chinensis. Bge. (Japonica)	118 U.
12	Laburnum vulgare. Gris. (Cytisus)	3 I, 3 T, 114 T, 46 P.
13	" " quercifolium. Hort	120 W.
14	" " Adami. Hort	119 W.
15	" alpinum. Mill	119 W, 46 X, 41 K.
16	" nigricans. L	118 X, 34 Q, 33 O.
17	" sessilifolium. L	118 X, 122 V, 116 U.
18	Cytisus austriacus. L	25 U, 116 V.
19	" hirsutus. L	34 Q, 33 O.
20	" purpureus. Scop	118 X, 34 O, 33 O.

DECIDUOUS TREES AND SHRUBS—*(Continued).*

	A. POLYPETALÆ. Leguminosæ (Papilionaceæ).	Locality. (Reference to Map.)
21	Cytisus triflorus. L'Her	43 S, 43 P.
22	Spartium Scoparium. L	91 E, 91 F, 118 V.
23	" junceum.* L	92 E, 92 F, 118 V, 31 N.
24	Genista tinctoria. L	118 U, 31 N.
25	Halimodendron argenteum. D. C	119 X.
26	Caragana arborescens. Lam	2 H.
27	" microphylla. Lam	119 V.
28	" frutescens. L	44 L, 50 F.
29	" Chamlagu. Lam.	119 W.
30	" jubata. Pall	119 W.
31	Robinia Pseudacacia. L	41 P, 69 V, 133 O.
32	" glutinosa. Sims	17 W, 44 P, 44 Q, 44 R.
33	" hispida. L	17 Y.
34	" inermis. Hort	120 U, 41 P.
35	Wistaria frutescens. L	4 P, 48 O.
36	" sinensis. D. C.	118 Q, 118 S, 48 O.
37	Colutea arborescens. L	15 C, 99 V, 107 W.
38	Indigofera Dosua.* Fr. Ham	118 X.
39	Amorpha fruticosa. L	16 G, 27 E, 130 O.
40	" nana. Nutt	109 U, 102 Q.
41	" canescens. Nutt	49 Y, 109 U, 134 X.
42	Coronilla Emerus. L	117 U.
	Drupaceæ.	
43	Amygdalus nana. L	31 R, 30 K, 115 U, 116 U.
44	Persica vulgaris. Fl. pl. Mill	119 W.
45	Prunus triloba. Lind. (Amygdalopsis)	119 Y.
46	" spinosa. L	113 U.
47	" Americana. Marsh	118 X, 46 W, 124 X.

DECIDUOUS TREES AND SHRUBS—*(Continued)*.

	A. POLYPETALÆ.	LOCALITY. (Reference to Map.)
	DRUPACEÆ.	
48	Prunus maritima. Wangenh.	118 V, 44 W.
49	" Sinensis. Fl. pl. Person	45 R, 48 L, 131 N.
50	" Mahaleb. L.	9 M, 117 X.
51	" Pennsylvanica. L.	42 R, 41 T, 40 P.
52	" Padus. L.	52 K, 111 V.
53	" Virginiana. L.	18 N. 112 T, 48 P.
54	" serotina. Ehrh.	2 L, 112 T, 48 P, 52 K.
	POMACEÆ.	
55	Cratægus pirifolia. Desf.	71 H, 114 X.
56	" tomentosa. Dur.	71 H.
57	" microcarpa. Lindl. (ferox).	119 X. 49 P, 51 F.
58	" cordata. Ait. (Mespilus acerifolia Poir.)	72 H, 114 X.
59	" Crus-galli. Ait. (lucida).	3 R, 32 M.
60	" linearis. Pers.	119 V, 124 Y.
61	" sanguinea. Pall.	70 Z.
62	" horrida. Hort.	119 X.
63	" corallina. Loud.	58 E, 51 F.
64	" monogyna. Pall.	71 H.
65	" Oxyacantha. L.	3 K, 111 H and I, 112 J.
66	" " Flore. pl. Hort.	71 H, 72 H, 34 O.
67	" " tanacetifolia. Poir.	125 W.
68	" " splendens. Hort.	72 H, 33 O.
69	Cotoneaster frigida. Wall.	115 W, 27 S.
70	Amelanchier rotundifolia. Lam.	24 Z, 129 O.
71	" Canadensis. L.	46 Q, 49 R, 125 W.
72	" spicata. Lam.	105 F, 126 V.
73	Sorbus Aucuparia. L.	7 Z, 55 W, 133 L.
74	" Americana. Willd.	115 X, 50 X, 133 G.

DECIDUOUS TREES AND SHRUBS—*(Continued)*.

	A. POLYPETALÆ. POMACEÆ.	LOCALITY. (Reference to Map.)
75	Sorbus Aria. L.	115 X.
76	" nana. Hort.	119 Y.
77	Pyrus spectabilis. Ait.	11 C.
78	" Tonisgo. Sieb.	117 Y.
79	" floribunda. Hort.	118 Y, 132 F.
80	Cydonia sinensis. Thouin.	16 Q, 49, 51 W.
81	" Japonica. Thunberg.	3 L, 30 K, 51 X.
	ROSACEÆ.	
82	Rosa lutea. Mill.	31 R, 32 S, 118 U, 34 O.
83	" spinosissima. L.	118 Y.
84	" Cinnamomea. L.	66 R.
85	" Boursantlis. Hort.	131 G.
86	" Carolina. L. (pennsylvanica).	65 R.
87	" rubifolia. Willd.	131 G.
88	" gallica. L.	118 W, 36 R, 35 Q, 57 S.
89	" canina. L.	30 K, 110 K.
90	" rubiginosa. L.	111 K, 112 L, 115 I.
91	" setigera. Michx.	119 W.
92	" " hybrida. Hort.	119 W, 33 W, 41 R.
93	" chinensis. Jacq.	118 W.
94	Rubus odoratus. L.	131 H.
95	" occidentalis.	131 G, 127 U.
96	" leucodermis. Dougl.	118 U, 45 M.
97	" spectabilis. Pursh.	94 Y, 99 V, 131 G.
98	" villosus. Ait.	116 G, 113 K, 127 U.
99	" trivialis. Mchx.	114 X, 109 X, 129 .
100	Potentilla fruticosa. L.	31 U, 31 T, 32 T.
101	Kerria japonica. D. C.	28 D, 46 P.

DECIDUOUS TREES AND SHRUBS—*(Continued)*.

	A. POLYPETALÆ. ROSACEÆ.	LOCALITY. (Reference to Map.)
102	Exochorda grandiflora. Lindl	117 Y, 118 V, 131 N.
103	Spiræa sorbifolia. L.	90 Z^1, 49 R, 47 L.
104	" opulifolia. L	10 K, 14 C, 29 E.
105	" ariaefolia. Sm	28 R, 26 B, 27 L.
106	" salicifolia. L.	119, 120 N, 63 G.
107	" " rubra grandiflora. Hort	120 R, 33 Q.
108	" carpinifolia. Willd	125 V, 30 P.
109	" Douglasii. Hook	123 V, 124 W.
110	" tomentosa. L.	122 Q, 51 F.
111	" laevigata. L	119 T.
112	" ulmifolia. Scop	39 P, 108 T, 131 N.
113	" confusa. Regl	123 X, 124 W, 132 N.
114	" crenata. L.	45 R, 129 O.
115	" Thunbergii. Bl	27 S, 41 S, 41 M.
116	" hypericifolia. L.	33 Q, 53 F.
117	" prunifolia. S. et Z.	28 M, 14 O, 26 Z^1, 15 G.
118	" trilobata. L.	45 R, 40 L, 128 R.
119	" callosa. Thunb	29 K, 31 Q, 107 T.
120	" bella. Sims	49 R, 103 S.
121	" Reevesiana. Lindl	32 T, 38 S, 46 N, 53 E.
	SAXIFRAGINEÆ.	
122	Philadelphus coronarius. L.	6 T, 30 H, 129 O.
123	" speciosus. Lindl.	45 R, 99 X, 115 V.
124	" gordonianus. Lindl	9 U, 124 X.
125	" nanus. Mill	33 H.
126	Deutzia crenata. S. et Z.	41 S, 45 N, 128 O.
127	" " flore pleno rosea. Hort	41 S, 132 M.

DECIDUOUS TREES AND SHRUBS—*(Continued)*.

	A. POLYPETALÆ.	LOCALITY. (Reference to Map.)
	SAXIFRAGINEÆ.	
128	Deutzia scabra. Hort.	6 B, 132 M, 125 K.
129	" gracilis. S. et L.	2 H, 30 H, 39 P, 125 K.
130	Hydrangea arborescens. L.	28 G.
131	" nivea. Mchx.	45 Q, 57 S, 56 V.
132	" quercifolia. Bart	16 R
133	" paniculata. Sieb.	120 Y.
134	Itea virginica. Willd.	39 V, 39 P.
	CALYCANTHACEÆ.	
135	Calycanthus macrophyllus. Hort.	115 L.
136	" floridus. L.	14 Q, 49 X, 50 I, 43 O.
	MAGNOLIACEÆ.	
137	Magnolia tripetala. L.	43, 44 N, 43 O.
138	" cordata. Mchx.	119 X.
139	" acuminata. L.	16 Y, 30 K, 45 R.
140	" auriculata. Lam.	43 N, 44 O, 45 R.
141	" macrophylla. Mchx.	33 R, 35 Q, 45 R.
142	" Yulan. Hort.	45 L, 45 M, 43 N.
143	" purpurea. Curt.	33 V, 35 Q.
144	" gracilis. Salisb.	45 M.
145	Liriodendron Tulipifera. L.	5 E, 26 L, 46 V, 43 I.
	BERBERIDEÆ.	
146	Berberis vulgaris L.	37 S, 51 F, 24 H.
147	" " atropurpurea. Hort.	41 T.
148	" aristata. D. C.	119 T.
149	" dulcis. Hort.	119 T.
	RANUNCULACEÆ.	
150	Clematis flammula. L.	46 O, 46 H, 131 K.
151	" Vitalba. L.	46 N, 46 H.

DECIDUOUS TREES AND SHRUBS—*(Continued).*

	A. POLYPETALÆ. RANUNCULACEÆ.	LOCALITY. (Reference to Map.)
152	Clematis Virginiana. L.	20 W, 47 P, 123 N.
153	" viticella. Moench	44 I, 45 J, 46 H.
154	" " rubra. Hort	45 J, 46 H.
155	" coerulea. Lindl.	118 V, 46 H.
156	" " grandiflora. Hort. (patens)	118 V.
157	Xanthorrhiza apiifolia. L'Her	43 J, 44 I.
158	Pæonia arborca. Donn	30 H, 119 W.
159	" papaveracea. Willd	118 V.
	TAMARICACEÆ.	
160	Tamarix tetrandra. Pall. (africana)	10 O, 16 K, 31 R, 31 U, 50 K, 50 I.
161	" gallica. L.	28 Y.
162	" Germanica. L.	123 Y.
	TILIACEÆ.	
163	Tilia Europæa. Mill.	8 Z^1, 34 X, 132 O.
164	" " latifolia. Hort	34 X, 131 O.
165	" Americana. L.	8 K, 134 H, 124 L.
	MALVACEÆ.	
166	Hybiscus Syriacus. L.	5 A, 134 T.
	HYPERICACEÆ.	
167	Hypericum Kalmianum. L.	1 J, 120 T.
	SAPINDACEÆ.	
168	Koelreuteria paniculata. Laxm.	1 S, 15 Q, 32 R
169	Æsculus Hippocastanum. L.	32 Z^1, 28 U.
170	" carnea. Willd.	51 Z^1, 51 Q.
171	Pavia Ohioensis. Mchx.	123 H.
172	" flava. Moench.	50 R.

DECIDUOUS TREES AND SHRUBS—*(Continued).*

	A. POLYPETALÆ. SAPINDACEÆ.	LOCALITY. (Reference to Map.)
173	Pavia rubra. Poir (rubicunda)	5 D.
174	" macrostachya. Mchx.	44 R, 38 L, 40 K.
175	Staphylea pinnata. L.	10 A, 38 S, 46 P.
176	" trifoliata. L.	3 M, 72 S, 52 F.
	ACERINEÆ.	
177	Acer Tataricum. L.	119 W, 109 V.
178	" Pennsylvanicum. L.	25 V, 123 W.
179	" palmatum. Thunb.	20 Q, 122 Y.
180	" Pseudo-Platanus. L. (polymorphum).	2 K, 32 Z, 12 P.
181	" macrophyllum. Pursh.	122 Y, 64 R.
182	" Platanoides. L.	4 B, 25 V, 21 M.
183	" nigrum. Mchx. (sacharinum).	1 D, 63 R.
184	" campestre. L.	7 E, 59 R, 124 and 125 V.
185	" dasycarpum. Ehrh.	2 F, 23 W, 21 L.
186	" rubrum. L.	22 N, 17 N, 31 Z, 19 B, 53 W.
187	" sacharinum. Hort. angl.	6 K, 14 E, 14 B.
188	Negundo fraxinifolium. Nutt (accroides).	8 O, 108, 109 V, 110 O.
	AMPELIDEÆ.	
189	Vitis Labrusca. L.	12 P, 42 T, 42 O.
190	" æstivalis. Mchx.	12 P, 43 S, 44 R.
191	" cordifolia. Mchx.	12 P, 45 Q, 45 L.
192	" odoratissima. Donn. (riparia).	12 P, 122 Y.
193	" heterophylla. Thunb.	120 X, 122 Y.
194	" capreolata. Royle.	120 X, 45 J.
195	" vinifera laciniata. Hort.	12 P, 122 Y.
196	Ampelopsis quinquefolia. Mchx.	48 Y, 3 O, 17 R, 37 S, 123 N.
197	" bipinnata. Torr. et Gr.	120 X, 122 Y.

	A. POLYPETALÆ. RUTACEÆ.	LOCALITY. (Reference to Map.)
198	Xanthoxylum fraxineum. Desf.	122 Y, 124 X.
199	Ptelea trifoliata. L.	107 W, 124 and 125 Z¹.
	THEREBINTHACEÆ.	
200	Rhus copallina. L.	101 H.
201	" glabra. L.	26 K, 121 K, 41 Q.
202	" " laciniata. Hort.	119 U.
203	" typhina. L. .)	7 E, 9 Z¹, 42 R.
204	" Toxicodendron. L.	59 S, 122 M, 128 J.
205	" Cotinus. L.	2 L, 18 U, 102 H, 41 P.
	SIMARUBACEÆ.	
206	Ailanthus glandulosus. Desf.	31 V, 7 H, 22 N, 106 W.
207	Coriaria myrtifolia. L.	124 O, 118 L, 116 K, 133 O.
	JUGLANDEÆ.	
208	Juglans Regia. L.	120 W, 46 V.
209	" nigra. L.	30 V, 119 U, 118 T.
210	" cinerea. L. (alba Marsh)	121 and 122 T.
211	Carya porcina. Nutt.	124 X.
212	" microcarpa. Nutt.	42 I, 133 K.
213	" tomentosa. Nutt	115 O, 133 G.
214	" sulcata. Nutt.	118 W, 126 J.
215	" alba. Nutt.	8 N, 26 I, 133 H.
216	Pterocarya caucasica. C. A. Mey	109 X.
	RHAMNEÆ.	
217	Rhamnus cathartica. L.	116 P, 130 Y.
218	" lanceolata. Parsh.	123 Y.
219	" franguloides. Mchx.	40 M.

DECIDUOUS TREES AND SHRUBS—*(Continued)*.

	A. POLYPETALÆ.	LOCALITY.
	RHAMNEÆ.	(Reference to Map.)
220	Ceanothus Americanus. L.	104 T.
221	" thyrsiflorus. Ehrh.	123 Z.
222	Celastrus scandens. L.	118 X, 113 T, 110 T.
223	Euonymus Europaeus. L.	22 X, 103 Q.
224	" " atropurpureus. L.	4 A, 102 Q.
225	" " latifolius. Scop.	42 T.
226	" atropurpureus. Jacq.	30 Q.
227	" Europ. albus. Hort.	103 Q, 124 V.
228	" Americanus. L.	16 Z^1, 103 R, 122 L.
	RIBESICÆ.	
229	Ribes divaricatum. Dougl.	33 R, 50 T.
230	" nigrum. L.	101 O, 53 S.
231	" sanguineum. Pursh.	121 W, 122 X.
232	" Gordonianum. Lem.	122 X, 51 X.
233	" aureum. Pursh.	30 J, 16 G.
	ARALIACEÆ.	
234	Aralia spinosa. L.	2 J, 30 A, 102 T.
235	Hedera Helix. L.	133 H, 9 H, 133 F, 132 H, 133 K.
	CORNACEÆ.	
236	Cornus sanguinea. L.	101 K, 110, 111 K, 111 E.
237	" alba. L. (tatarica Mill.).	1 N, 13 P, 114 V.
238	" stolonifera. Mchx.	9 Z, 94 X, 44 V, 56 V.
239	" mascula. L.	115 W, 44 I.
240	" florida. L.	7 F, 27 Z, 44 V.

DECIDUOUS TREES AND SHRUBS—*(Continued).*

	B. MONOPETALÆ. CAPRIFOLIACEÆ.	LOCALITY. (Reference to Map.)
241	Lonicera Periclimenum. L.	16 Z, 133 K.
242	“ Caprifolium. L.	4 M, 51 J, 40 K.
243	“ Americana. Mill.	45 O.
244	“ Douglasii. Lindl.	44 I, 122 Y.
245	“ hirsuta. Eat.	122 Y, 133 H.
246	“ flava. Sims.	45 I, 122 Y.
247	“ Brownii. Hort.	45 J, 44 I.
248	“ sempervirens. L.	29 R, 31 R, 133 K.
249	“ Japonica. Thunb.	44 R, 133 K.
250	“ brachypoda. D. C.	45 I, 45 J, 122 Y.
251	“ fragrantissima. Paxt.	29 H, 29 G, 132 N.
252	“ tatarica. L.	11 P, 32 O, 39 S.
253	“ “ versicolor. Hort.	32 U.
254	“ nigra. L.	112 V, 128 O.
255	“ Ledebourii. Esch.	112 U.
256	Xylozteum vulgare. Rochl.	42 S, 46 P, 126 P.
257	“ ciliatum. Pursh.	128 K, 127 J.
258	“ coeruleum. Dum.	111 T, 127 L.
259	Diervilla Canadensis. Willd.	44 M.
260	Weigelia multiflora. Lem.	121 X.
261	“ versicolor. S. et Z.	121 X, 131 N.
262	“ hortensis. S. et Z. (alba.)	121 X.
263	“ amabilis. Carr.	16 I, 51 Z^1, 133 J.
264	“ rosea. Lindl.	7 W, 31 R, 51 Z^1.
265	Leicesteria Formosa. Wall.	120 W.
266	Symphoricarpus glomeratus. Pursh.	25 B, 133 I, 94 Z.
267	“ racemosus. Mchx.	30 W, 108 F, 126 R.

DECIDUOUS TREES AND SHRUBS—*(Continued).*

	B. MONOPETALÆ. VIBURNEÆ.	LOCALITY. (Reference to Map.)
268	Viburnum Lantana. L.	27 L, 115 T, 42 N.
269	" nudum. L.	46 W, 64 R.
270	" lævigatum. Wall.	66 S, 103 S.
271	" Lentago. L.	116 S, 120 H.
272	" prunifolium. L.	27 V, 51 Z^2.
273	" Opulus. L.	3 Z^1, 29 G, 30 M.
274	" " nanus. Lk.	117 V.
275	" oxycoccus. Willd.	7 O.
276	" dentatum. L.	112, 113 X, 114 U, 116 R & S.
277	" acerifolium. L.	122 Z, 119 G.
278	Sambucus Canadensis. L.	117 M, 119 M, 103 P, 125 O.
279	" nigra heterophylla. Hort.	115 V.
	RUBIACEÆ.	
280	Cephalanthus occidentalis. L.	106 W, 44 N.
	COMPOSITÆ.	
281	Bacharis halimifolia. L.	44 L.
282	Artemisia Abrotanum. L.	123 Y.
	STYRACEÆ.	
283	Halesia tetraptera. L.	19 Y, 47 N, 48 N.
	EBENACEÆ.	
284	Diospyros Virginiana. L.	40 S.
	OLEACEÆ.	
285	Fraxinus Ornus. L.	111, 112 V.
286	" excelsior. L.	4 G, 28 N.
287	" " pendula. Hort.	19 Z, 16 L.
288	" " aurea. Hort.	11 K.

	B. MONOPETALÆ. OLEACEÆ.	LOCALITY. (Reference to Map.)
289	Fraxinus parvifolia. Vahl	2 E.
290	“ lentiscifolia. Desf.	29 Y.
291	“ juglandifolia. Willd.	111 V, 71 Z, 65 G.
292	“ Americana. L. (alba)	10 X, 1 T, 109 U. 69 R.
293	“ sambucifolia. Lam.	43 S, 69 R, 63 H.
294	“ quadrangulata. Mchx.	58 R.
295	“ viridis. Hort	118 V.
296	Chionanthus Virginica. L.	2 H, 32 Z^1.
297	“ macrophylla. Hort.	123 Z.
298	Forsythia suspensa. Thunb.	3 J, 27 D, 52 J, 51 J.
299	“ Thunbergii. Sieb.	123 Z.
300	“ viridissima. Lindl.	1 M, 15 I, 26 L, 29 I, 111 T.
301	Syringa vulgaris. L.	32 S, 29 V, 28 B, 1 Q.
302	“ Chinensis. Willd.	46 P, 57 S, 50 I.
303	“ Persica. L.	5 J, 9 M, 29 G.
304	“ Josikæa. Jacq.	2 T, 48 K, 46 P.
305	“ Emodi. Wall.	47 K, 123 Z.
306	Ligustrum vulgare. L.	12 K, 115, 116 M, 119, 22 L.
307	“ ovalifolium. Hassk. (japonicum)*	3 K, 30 P.
308	“ Italicum. Hort.	131 N, 132 N.
309	“ “ fructu—albo. Hort.	131 N, 124 U.
310	“ lucidum. Ait.	123 Z.
	JASMINEÆ.	
311	Jasminum fruticans. L.	44 I.
312	“ nudiflorum. Lindl.	44 I, 46 H.
	ASCLEPIADEÆ.	
313	Periploca Græca. L.	19 W, 46 O

DECIDUOUS TREES AND SHRUBS—*(Continued.)*

	B. MONOPETALÆ.	LOCALITY. (Reference to Map.)
	LOGANIACEÆ.	
314	Buddleya Lindleyana. Fort	123 W.
315	" Amurense. Reg	123 W.
	PERSONALÆ ET BIGNONIACEÆ.	
316	Paulownia imperialis. S. et Z.	10 Z, 20, 30 K, 49 K.
317	Catalpa syringæfolia. Sims	25 K, 31 Z, 17 L, 113, 115 M.
318	" Bungei. C. A. Mey	122 X.
319	Tecoma radicans. Willd (Bignonia)	50, 7 M, 16 P.
320	" grandiflora. Thunb	14 K, 27 H, 44 I.
	VERBENACEÆ.	
321	Callicarpa purpurea. Juss	1 P, 125, 126 T, 120 C, 116 G.
322	Vitex Agnus-castus. L.	120 Y, 124 X.
	SOLANEÆ.	
323	Solanum Dulcamara. L.	44 I, 46 H.
324	Lycium barbarum. Ait	27 R, 124 P, 123 O, 123 Q.
	C. APETALÆ.	
	LAURINEÆ.	
325	Sassafras officinale. N. v. Es.	2 P, 27 L, 43 R, 41 I.
326	Benzoin odoriferum. N. v. Es.	2 H, 28 J, 43 S, 112 X.
	THYMALEÆ.	
327	Daphne mezereum. L.	29 R, 103 E, 105 E, 45 O, 45 J.
	ELÆAGNACEÆ.	
328	Hyppophæ Rhamnoides. L.	119 U, 120 Y.
329	Shepherdia argentea. Pursh	8 B, 74 E, 75, 76 D.
330	Elæagnus angustifolia. L. (hortensis.)	2 G, 30 V, 30 A, 51 L, 49 K, 41 K.

DECIDUOUS TREES AND SHRUBS—*(Continued.)*

	C. APETALÆ. ARISTOLOCHIACEÆ.	LOCALITY. (Reference to Map.)
331	Aristolochia Sipho. L'Her	44 I, 119 W, 122 Z.
332	“ tomentosa. Sims	123 X, 119 W.
	CHENOPODIACEÆ.	
333	Atriplex Halimus. L	72 Z^1.
	CUPULIFERÆ.	
334	Quercus Robur. L	43 O, 57 R, 55 X.
335	“ “ fastigiata. Hort	57 R.
336	“ “ atropurpurea. Hort	28 E, 119 W.
337	“ pedunculata. L	16 C, 18 A, 66 R.
338	“ Cerris. L	5 I, 19 Z, 72, 87 E, 71 Z.
339	“ alba. Mchx	17 E, 24 E, 43, 42 I.
340	“ Phellos. L	123 X.
341	“ rubra. L	16 H, 44 N, 39 M.
342	“ nigra. Mchx	18 E, 42 I, 46 W.
343	“ macrocarpa. Mchx	116 W, 123 X, 122 I.
344	Castanea vesca. L	3 R, 42 I, 115 P and Q.
345	“ Americana. Don	2 L, 42 I, 45 I.
346	Fagus sylvatica. L	4 Y, 110, 109 T, 114 S, 105 V.
347	“ “ atropurpurea. Hort	32 V, 19 W, 111 V.
348	“ “ pendula. Hort	24 V, 49 P, 46 G, 115 V.
349	“ “ asplenifolia. Hort	109 U, 115 W, 45 L.
350	“ ferruginea. Ait	133 G.
351	Corylus Americana. Mchx	29 M, 44 N, 43 I.
352	“ avellana. Willd	45 H, 133 G.
353	“ “ purpurea. Hort	44 I, 123 X.
354	Carpinus Betulus. L	10, P, 53 L to O.
355	“ Americana. Mchx	9 X, 38 V.
356	Ostrya Virginica. Mchx	43 X, 43 I.

DECIDUOUS TREES AND SHRUBS—*(Continued)*.

	C. APETALÆ. ULMACEÆ.	LOCALITY. (Reference to Map.)
357	Ulmus campestris. L.	3 A, 8 K, 25 M.
358	" microphylla. Hort.	33, Z.
359	" montana. With.	1 C, 22 E, 32 N, 128 O.
360	" " exoniensii. Hort	27 N, 101 F.
361	" " suberosa. Hort.	15 Y, 23 T.
362	" Americana. L.	16 S, 23 R, 23 P, 23 L, 19 Q.
363	" fulva. Mchx.	9 Z, 20 T, 114 T.
364	" parvifolia virens. Jacq.	100 T, 112 H.
365	Celtis australis. L.	110 W, 122 H.
366	" lævigata. Willd.	104, 105 T, 123 H.
367	" occidentalis. L.	108 V, 127 J.
368	" humilis. Hort.	104 U, 102, 103 U, 101 V.
	MORACEÆ.	
369	Maclura aurantiaca. With.	20 Y, 24 W, 22 Y.
370	Broussonettia papyrifera. L.	7 X.
371	Morus rubra. L.	1 D, C, 15 114 W.
	HAMAMELIDEÆ.	
372	Nissa multiflora. Wangurts.	102 Q, 102 S.
373	" aquatica. L.	45 N, 43 I.
374	Hamamelis Virginiana. L.	45 W, 42 I.
	PLATANEÆ.	
375	Liquidambar Styraciflua. L.	9 O, 108 U.
376	Platanus orientalis. L.	118 V.
377	" occidentalis. L.	6 Z^1, 28 P, 17 B, 57 T, 110 X.
	SALICACEÆ.	
378	Populus alba. L.	18 E, 53 K, 134 Z^1.

C. APETALÆ.

SALICACEÆ.

	C. APETALÆ.	LOCALITY. (Reference to Map.)
379	Populus tremula pendula. Hort	24 W, 27 V, 45 H.
380	“ grandidentata. Mchx	114 K.
381	“ monolifera. Ait. (Canadensis)	3 I, 7 K, 133 P.
382	“ balsamifera. L	2 S, 13 L, 121 K.
383	“ nigra fastigiata. Desf	31 U, 19 P, 125, 126 Z.
384	Salix Japonica. Sieb	125, 126 Y, 120 Z.
385	“ Babylonica. L	2 W, 22 O, 63 G, 63 H.
386	“ nigra. Marsh	6 N, 56 V.
387	“ vitellina. L	43 W, 57 R.
388	“ Dasyclados. Wimm	120 X.
389	“ alba. L. (aurea)	44 W, 40 V.
390	“ lucida. Sieb	2 V, 126 Z, 125 P.
391	“ rosmarinifolia. Gouan	94 Z¹, 124 Y.
392	“ viminalis. L	63 R, 120 Z.
393	“ Caprea. L	33 V, 123 Y.
394	“ Americana. Mchx. (sericea)	37 R, 75, 76 C.

BETULINEÆ.

395	Alnus viridis. A. Gray	64 R, 63 R, 40 K, 126, 127 O.
396	“ glutinosa. L	37 P.
397	“ cordata. Lois	3 Y, 8 X, 59 R, 126 Y.
398	“ rugosa. Ehrh. (serrulata)	2 X, 8 Z.
399	“ incana. L	58 R.
400	Betula lenta. L. (nigra)	23 P, 60 R, 111 L, 115 J.
401	“ lutea. Mchx	68 T, 62 R.
402	“ alba. L	4 O, 27 T, 1 O, 32 N, 43 R.

2. [*Non-coniferous*] "*Evergreen*" [*sub-evergreen*] *and* "*American*" *Plants growing exposed or partially protected on the Central Park in* 1873, *with an indication of the locality in which a specimen of each may be found.*—[DEMCKER.]

[NOTE.—Those needing protection with straw or mats are marked Pr.]

	LEGUMINOSÆ.		LOCALITY. (Reference to Map.)
1	Ulex Europæus. L.	Pr.	118 V.
2	Spartium album. Desf.	Pr.	119 U.
3	Genista sagittalis. L.		120 Y.
4	" triquetra. Wet K.		120 Y.
5	" pilosa. L.		120 Y.
6	" prostrata. Lamb.		120 Y.
7	Caragana pygmæa. L.		121 W.
8	Indigofera decora. Lindl.		120 X.
9	Coronilla glauca. L.	Pr.	120 X.
10	Desmodium penduliflorum.* Hort.		Collection Mt. St. Vincent.
	DRUPACEÆ.		
11	Prunus Caroliniana. Mill.	Pr.	122 Y.
12	" Lusitanica. L.	Pr.	122 Y, 33 O, 33 Q.
13	" Lauro Cerasus. L.	Pr.	122 Y, 33 O, 33 Q.
14	Mespilus Pyracantha. L. (Cratægus)		21 V, 31 M, 122 Y, 133 L.
15	Cotoneaster microphylla. Lindl.		115, 116 H, 33 O, 33 Q.
16	" buxifolia. Wall		115, 116 H, 125 R.
17	Cotoneaster thymifolia. Hort. (microph. Wall)		115, 116 H, 33 O, 33 Q.
18	Photinia serrulata. Lindl.	Pr.	30 M.
	ROSACEÆ.		
19	Rosa noisettiana. Th. et Red.	Pr.	Collection Mt. St. Vincent.
20	" indica. Lindl.	Pr.	" " "

SMOOTH-LEAVED EVERGREEN AND AMERICAN PLANTS—*(Continued)*.

	Rosaceæ.		Locality. (Reference to Map.)
21	Rosa semperflorens. Curt	Pr.	Collection Mt. St. Vincent.
22	" fragrans. Red. Ros	Pr.	" " "
23	" Lawrenciana. Hort	Pr.	" " "
24	" Bourbonica. Jacq	Pr.	" " "
25	Kerria Japonica. L		43 Q, 122 Y.
26	" " fol. albo. var. Sieb	Pr.	43 Q, 34 Q, 34 O, 122.
	Saxifragineæ.		
27	Hydrangea Hortensis. L	Pr.	4 J, 32 O, 32 Q, 49 P, 51 P.
28	" involucrata. Sieb	Pr.	122 Y.
29	" quercifolia. Bastr		44 P.
30	" Japonica. Hort	Pr.	44 P, 42 K.
31	Escallonia floribunda. D. C	Pr.	Collection Mt. St. Vincent.
	Calycanthaceæ.		
32	Calycanthus praecox. T. et Gr	Pr.	" " "
33	" laevigatus. T. et Gr	Pr.	" " "
	Magnoliaceæ.		
34	Magnolia grandiflora. Hort	Pr.	" " "
35	" glauca. L		46 O, 47 P, 45 P, 46 P.
	Berberideæ.		
36	Akebia quinata. Thunb		17 R, 44, 55 J.
37	Berberii Darwini. Hook	Pr.	46 H, 115 H.
38	" dealbato. Lindl	Pr.	Collection Mt. St. Vincent.
39	" empetrifolia. Lond	Pr.	" " "
40	" aristata. D. C	Pr.	" " "
41	" ilicifolia. Fort	Pr.	" " "
42	Mahonia aquifolium. Nutt		3 N, 53, 54 G, 59 H, 11 O.

EVERGREEN AND AMERICAN PLANTS *(Continued).*

	BERBERIDEÆ.	LOCALITY. (Reference to Map.)
43	Mahonia aquifolium. Nutt.	115, 116 H, 133 L.
44	“ Bealii. Forst. Pr.	46 H.
45	“ Japonica. Sieb.	15 N, 46 H, 115 H, 114
46	“ Nepalensis. D. C. Pr.	Collection Mt. St. Vincent.
47	“ nervosa. Pursh. Pr.	“ “ “
	CISTACEÆ.	
48	Helianthemum vulgare. Gaertn.	“ “ “
49	“ montanum. L.	“ “ “
50	Helianthemum mutabile. Hort.	“ “ “
	TERNSTROEMIACEÆ.	
51	Eurya Japonica. Thunb. Pr.	“ “ “
	HYPERICACEÆ.	
52	Hypericum calycinum. L. Pr.	120 T.
53	“ uralum. Don.	120 T.
	RUTACEÆ.	
54	Skimmia Japonica. Thunb. Pr.	Collection Mt. St. V.
	RHAMNEÆ.	
55	Rhamnus alaternus. L. Pr.	“ “
56	Evonymus Japonicus. Thunb. Pr.	46 O.
57	“ “ nanus. Bieb. Pr.	46 H.
58	“ “ fol. argent. Pr.	46 O.
59	“ radicans. Sieb.	46 H, 33, 34, O and Q.
60	“ angustifolius. Hort.	46 H, 33, 34, O and Q.
	ARALIACEÆ.	
61	Aralia papyrifera. Thunb. Pr.	Collection Mt. St. V.

EVERGREEN AND AMERICAN PLANTS—*(Continued).*

	Araliaceæ.	Locality. (Reference to Map.)
62	Aralia Japonica. Thunb. (Fatsia.)..........Pr.	Collection Mt. St. Vincent.
63	Hedera Colchica. C. Koth..................Pr.	" " "
64	" Hibernica. Hort..................Pr.	4 J, 46 O, 130 L.
	Cornaceæ.	
65	Aucuba Japonica. Thunb..................Pr.	44 T, 46 H, 33 O and Q, 123 N.
66	" Himalaica. Hook..................Pr.	Collection Mt. St. V.
	Ericaceæ—Vaccineæ.	
67	Vaccinium ovatum. Pursh......................	45 N, 133 K.
68	" arboreum. Mchx....................	45 M, 44 N.
69	" Pennsylvanicum. Lamb...	42 J, 103 Q.
70	" corymbosum. L....................	45 J.
71	" uliginosum. L......................	120 U, 111 E and F, 112 F.
72	" erythrocarpum. Mchx..............	Collection Mt. St. V.
73	Gaultheria procumbens. L.....................	45 J.
74	" Shallon. Pursh..................Pr.	Collection.
75	Lyonia floribunda. Pursh. (Andromeda)........	45 J, 46 H, 33 O and Q,
76	" Mariana. L............................	Collection.
77	" pulverulenta. Bartr...................	44 J, 46 H, 103 G.
78	" ligurstrina. D. C. (paniculata)..........	45 J, 46 H, 103 G.
79	Leucothœa axillaris. Sol......................	44 N, 42 J.
80	" Catesbei. Walt......................	44 M, 45 J, 33 O and Q.
81	Cassandra calyculata. Don....................	44 J, 47 H, 133 L.
82	Andromeda Polifolia. L.......................	44 J, 47 H.
83	Menziesia ferruginea. Sin......................	Collection.
84	" coerulea. Swarz...................	"
85	Calluna vulgaris. Willd. (Erica)................	".
86	Erica Tetrabix. L............................	"

EVERGREEN AND AMERICAN PLANTS—*(Continued)*.

	Ericaceæ—Vaccineæ.	Locality. (Reference to Map.)
87	Erica cinerea. L.	Collection.
88	" vagans. L.	"
89	" multiflora. L.	"
90	" carnea. Willd.	34 W, and Collection.
91	" herbacea. L.	" "
92	Gypsocallis Hibernica. Hort. *	" "
93	" mediterranea. D. C. *	" "
94	" arborea. D. C. *	" "
95	" sihgora. D. C. *	" "
96	" hybrida nana. Hort. *	" "
	Rhodoraceæ.	
97	Leiophyllum buxifolium. Berg.	" "
98	Ledum palustre. L.	46 H, 104 F.
99	" latifolium. Ait.	45 J, 133 L.
100	Clethra alvifolia. L.	44 N, 42 J, 103 F.
101	" acuminata. Mchx.	44 N, 42 J.
102	Kalmia latifolia. L.	7 X, 47 O, 38 M, 33 O and Q.
103	" angustifolia. L.	48 H, 120 U, 133 L.
104	" glauca. Ait.	45 J, 120 U, 133 L.
105	Epigacea repens. L.	46 H.
106	Rhododendron ferrugineum. L.	46 H, 30 R, 33 O and Q.
107	" myrtifolium. Schot.	48 H, 30 R, 33 O and Q.
108	" hirsutum. L.	46 H, 28 and 29 R, 33 O and Q.
109	" ponticum. L.	7 X, 28, 29, 30 R.
110	" Catawbiense. Mchx.	7 X, 9 O, 27 S, 37 S, 38 P, 46 O, 46 H.
111	" maximum. L.	7 X 9 O, 27 S, 38 P, 46 O.
112	" hybridum. Hort.	27 S, 37 S, 43 N, 30 R.
113	Azalea indica. L.	Collection.

EVERGREEN AND AMERICAN PLANTS—*(Continued)*.

	RHODORACEÆ.	LOCALITY. (Reference to Map.)
114	Azalea obtusa. Lindl	46 J, 46 H.
115	" amoena. Lindl	46 J, 46 H, 33 O and Q.
116	" ledifolia. Hook	46 H.
117	" sinensis. Lodd	Collection.
118	" pontica. L.	43 O, 42 J.
119	" caleudnlacea. Mchx	42 O, 44 M, 43 O.
120	" viscosa. L.	42 O, 44 M, 43 O.
121	" nudiflora. L.	44 O, 42 O, 43 M.
122	" hybrida. Hort	45 and 46 K, 104 F.
123	Rhodora Canadensis. L.	46 J, 46 H.
	AQUIFOLIACEÆ.	
124	Ilex aquifolium. L.	46 H, 43 N, 113 B, 114 L.
125	" " fol. variegat. Hort. . . . . Pr.	Collection.
126	" opaca. Ait	4 O, 119, 110 U, 113 B, 114 L.
127	" latifolia. Thunb. . . . . Pr.	Collection.
128	" crenata. Thunb. . . . . Pr.	"
129	" nana. Hort. (Aquifol. nana). . . . . Pr.	46 H.
130	Prinos glabra. L.	106, 107 D, 106 E, 113 F.
131	" verticillata. L.	2 L, 119 N, 104 F, 113 E.
132	" laevigata. Pursh	106 E, 104 F, 132 M.
133	Ligustrum lucidum. Ait	Collection.
134	" " fol. var. Hort	"
135	" Japonicum macroph. Hort. . . . . *	113, 114 L.
136	Olea aquifolium. Thunb. . . . . Pr.	Collection.
137	Philyrea latifolia. L. . . . . Pr.	106 E, 114 L.
	JASMINEÆ.	
138	Jasminum fruticans. L.	46 H.

	JASMINEÆ.	LOCALITY. (Reference to Map.)
139	Jasminum nudiflorum. Lindl	46 H.
140	” Wallichianum. Lindl	46 H.
	THYMELEÆ.	
141	Daphne Cneorum. L	46 H, 120 U.
142	” Fortunei. Hort	Collection.
143	” Alpina. L	”
	EUPHORBIACEÆ.	
144	Buxus sempervirens. L	123 N.
145	” arborescens. Hort	15 P, 15 U, 120 U, 123 O.
146	” ” fol. var. Hort	15 P, 15 U, 120 U.
147	” latifolia. Hort	120 U.
	MYRICACEÆ.	
148	Myrica cerifera. L	54 W, 125 U, 98 E, 104 D, 114 G and H.
149	Comptonia asplenifolia. Banbi	98 E, 104 D 113 H, 113 I, 113 and 114 L.

3.—*Coniferous Plants growing exposed on the Park, with an indication of the locality in which a specimen of each may be found.* [DEMCKER,]

[Those marked with an * have not proved hardy.—W. L. F., 1875.]

	A. ABIETINÆ.	LOCALITY. (Reference to Map.
1	Larix Europæa. D. C	6 Y, 2 R, 1 P, 12 O.
2	” ” pendula. Lodd	40 O.
3	” ” nana. Hort	16 M. 11 P.
4	” Americana. Mchx. (microcapa)	123 S.

CONIFEROUS PLANTS—*(Continued)*.

	A. ABIETINÆ.	LOCALITY. (Leference to Map.)
5	Cedrus Libani. Barr.	42 P, 62 G, 79 C.
6	“ Africana. Gord (atlantica)	80 C, 119 U.
7	Abies alba. Michx.	20 N, 56, 57 H, 66 H.
8	“ “ coerulea. Lodd	16 R, 56, 57 H, 66 H.
9	“ exelsa. D. C.	2 R, 3 O, 4 B, 36 S, 56, 57, 58 L.
10	“ “ pygmæa. Lond	48 H, 79 C.
11	“ “ Clanbrasiliana. Lond	46 N, 44 L, 85 C, 120 U.
12	“ menziesii. Lond. *	40 L, 78 C.
13	“ nigra. Michx.	1 K, 90, 47 G.
14	“ orientalis. Poir	33 N, 40 M, 47 G, 76 C.
15	“ Smithiana. Lond. (morinda)	41 L, 75 D.
16	Tsuga Canadensis. Carr. (Picea)	4 B, 16 O, 61 F.
17	“ “ nana. Carr	119 U.
18	Picea balsamea. Lond	119 U.
19	“ Cephalonica. Lond.	63 C, 64 E.
20	“ Hudsonica. Hort. (Fraseri nana)	40, 41 K, 120 U.
21	“ nobilis. Lond.	41 K, 120 U.
22	“ Nordmanniana. Lond	34 N, 60 F, 119 U.
23	“ pectinata. Lond	47 G, 59 H, 119 U.
24	“ grandis. Lond.	47 G, 119 U.
25	“ Pichta. Lond	65 D, 119 U, 91 F.
26	“ Pinsapo. Lond	119 U.
27	Pinus Austriaca. Hort.	6 Y, 6 E, 36 Y, 74 E.
28	“ “ Laricio. Endl	6 Y, 3 P, 78 D.
29	“ Laricio. Poiret	11 V, 40 M.
30	“ Mugho. Bank. (pumilio)	18 Y, 61 C, 43 N.
31	“ Pumilio. Haenke	2 P, 16 R, 61 B, 85 C.
32	“ rubra. Michx (resinosa)	41 L, 119 V, 34 U, 43 N.

CONIFEROUS PLANTS—*(Continued)*.

	A. ABIETINÆ.	LOCALITY. (Reference to Map.)
33	Pinus sylvestris. L.	5 X, 14 Q, 20 Y, 34 S.
34	" Jeffreyana. V. H. *	119 V, 41 K.
35	" ponderosa. Dougl. *	45 H, 64 F.
36	" rigida. Mill	119 U.
37	" Cembra. L.	12 P, 43 Q, 40 M.
38	" exelsa. Wall	48 R, 55 G, 47 X.
39	" Strobus. L.	1 X, 4 P, 6 I, 36 S.
40	" " nana. Knight	63 E, 119 U.
41	Cunninghamia Sinensis. R. Br. (Pinus)	119 U.
	B. CUPRESSINEÆ.	
42	Juniperus communis. L.	100, 101 D, 76 E, 77 E.
43	" Hibernica. Hort	100 D, 80 B.
44	" Sueeica. Mill	100, 101 D, 81 A.
45	" Chinensis pendula. Hort	101 V, 101 F, 101 T.
46	" prostrata. Pers	41 P, 114, 115 H.
47	" Sabina. L.	34 N, 45 L, 42 O.
48	" squamata. Don	34 N, 48 Y, 114 H.
49	" Virginiana. L.	48 U, 47 R, 56 R.
50	" " glauca. Lodd	56 G, 101 V.
51	Cupressus Lawsoniana. Murr	64 F, 119 U, 75 C.
52	Retinospora ericoides. Zucc	17 Q, 44 R, 99 D, 105 D, 103 E.
53	" pisifera. Lond	114 H.
54	" obtusa aurea. Sieb.	114 H.
55	Thuja occidentalis. L	7 G, 44 R, 45 Z, 123 O.
56	" plicata. Hort	119 U.
57	" Sibirica. Hort	119 U.
58	Biota orientalis. Endl. (Thuja)	123 O, 124 J.

CONIFEROUS PLANTS—(*Continued*).

	B. CUPRESSINEÆ.	LOCALITY. (Reference to Map.)
59	Biota compacta. Hort	119 U, 74 D.
60	" " aurea. Hort	34 N, 119 U.
61	Thujopsis borealis. Fisch	114 H, 107 F, 123 O.
62	" dolobrata. Sieb	114 H.
63	Cryptomeria Japonica. Don	45 J, 44 G, 77 C.
64	" elegans. Lodd	119 U, 77 C.
65	Sequoia gigantea. Endl	33 N, 120 U.
66	Taxodium distichum. Rich	1 U, 22 Y, 60 G, 124 O.
	C. TAXINEÆ.	
67	Taxus baccata. Thunb	15 N, 40 M, 39 M, 46 I.
68	" adpressa. Carr	47 H, 119, 120 U, 115 G.
69	" Canadensis. Lond	37 L, 72 F.
70	" ericoides. Hort	47 H, 120 U, 72 F.
71	" fastigiata. Lond	45 G, 129 U, 101 E.
72	" horizontalis. Hort	46 G, 47 H.
73	" Dovastoni. Lond	46 H.
74	" aurea. Hort	119 U, 72 F.
75	Torreya nucifera. Zucc	47 Q.
76	" taxifolia. Arnott	119 U.
77	Cephalotoxus drupacea. Sieb	46 N, 46 O, 72 F.
78	" Fortunei. Hook	45 I, 46 G, 72 F.
79	Podocarpus Japonica. Sieb	47 G, 56, 57 H.
80	Ginkgo biloba. L. (Salisburea)	32 S, 32 M, 130 Z^1.
	D. GNETEÆ.	
81	Ephedra monoshachya. L	120 U.

4.—*Hardy Perennial and Alpine Plants in the collection near Mount St. Vincent, with an indication of other localities on the Park in which several kinds (not including the more common varieties) may be found.*—[DEMCKER.]

	A. ACOTYLEDONES. FILICES.	LOCALITY. (Reference to Map.)
1	Polypodium vulgare. L.	130 K, 47 I.
2	“ Dryopteris. L.	Collection.
3	Adiantum pedatum. L.	124 O, 115 H, 46 J.
4	Pteris aquilina. L.	Collection.
5	Cheilanthes vestita. Swtz.	“
6	Pellaca gracilis. Hook	“
7	Woodwardia virginica. Smith	“
8	Asplenium pinnatifidum. Nutt.	“
9	“ Trichomanes. L.	“
10	“ Ruta-muraria. L.	“
11	“ thelypteris. Michx.	“
12	Anthyrium Filix-foemina. Bemh.	132 L, 122 N, 46 J.
13	Scolopendrium vulgare. Smith.	Collection.
14	Aspidium spinnlosum. Swtz	“
15	“ rigidum. Swtz.	“
16	“ goldianum. Hook	“
17	“ Filix mas. Swtz.	115 L, 124 D.
18	“ acrostichoides. Swtz.	115 L, 124 D, 46 J.
19	Cystopteris fragilis. Bernh	46 J, 47 I.
20	Strutiopteris germanica. Willd.	Collection.
21	Onoclea sensibilis. L.	115 L, 124 D.
22	Cyrtomium falcatum. Lh.	Collection.
23	Woodsia obtusa. Torr.	“
24	“ Iloensis. R. Br.	“
25	Lomaria spicant. L.	“

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued.)*

	I. ACOTYLEDONES. FILICES.	LOCALITY. (Reference to Map.)
26	Lygodium palmatum. Swtz	Collection.
27	" scandens. Hort	"
28	Osmunda regalis. L	"
29	" Claytoniana. L	"
30	" cinamomea. L	47 J, 112 J.
31	Lycopodium dendroideum. Mchx	Collection.
32	" clavatum. L	"
	B. MONOCOTYLEDONES. GRAMINEÆ.	
33	Aira cæspitosa. Fol. var. Hort	Collection.
34	Lizania aquatica. L	"
35	Stipa pennata. L	"
36	" gigantea. Hort	"
37	" juncea. L	
38	Elymus glauca. Hort	
39	Briza media. L	
40	Erianthus Ravennæ. Ten	119 U.
41	Festuca glauca	Collection.
42	" gigantea	"
43	Gymnotrix latifolia	"
44	Holcus lanatus. Fol. var. Hort	"
45	Imperata sachariflora	"
46	Phalaris arundinacea. Fol. var. Hort	20 V, 5 and 6 O, 119 U.
47	Arundo Donax. L	Collection.
48	" " versicolor. Hort	45 N.
49	Uniola latifolia. Mchx	Collection.
50	Bromus brizæformis. Kth	"

	B. MONOCOTYLEDONES. GRAMINEÆ.	LOCALITY. (Reference to Map.)
51	Gynerium argenteum. Nees	Collection.
52	Arundinaria macrosperma. Mchx	“
53	“ falcata. Lk	“
	CYPERACEÆ.	
54	Cyperus dentatus. Torr	122 N.
55	Killingia pumila. Mchx	Collection.
56	Scirpus pungens. Vahl	122 N.
57	Eriophorum latifolium. L	Collection.
58	“ cyperinum. L	“
59	“ vaginatum. L	“
60	Carex Japonica. Sieb	119 U.
	JUNCACEÆ.	
61	Juncus effusus. L	119 U.
62	“ insignis. Tries	Collection.
63	“ acuminatus. Mchx	119 U.
	TYPHACEÆ.	
64	Typha latifolia. L	45 N, 133 M
65	“ angustifolia. L	45 N.
	ALISMACEÆ	
66	Alisma Plantago. L	133 M, 45 N.
67	Sagittaria lancifolia. L	45 N.
68	“ variabilis. Engelm	45 N.
69	“ heterophylla. Pursh	45 N.
	MELANTHIACEÆ.	
70	Melanthium virginicum. L	Collection.
71	Helonias bullata. L	“

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued.)*

	B. MONOCOTYLEDONES.	LOCALITY. (Reference to Map.)
	MELANTHIACEÆ.	
72	Veratrum viride. Ait	116 I, 114 B, 116 L.
73	“ nigrum. L	Collection.
74	Xerophyllum asphodeleum. Nutt	“
75	Chamælirium luteum. Willd	
76	Colchicum auctumnale. L	119 U.
77	“ maximum. Hort	Collection.
78	“ Byzanthinum. Hort	“
	DIOSCOREÆ.	
79	Dioscorea alata. Lk	123 V.
80	“ Japonica. Sieb	123 V.
	SMILACEÆ.	
81	Smilax rotundifolia. L	42 L, 42 Q, 101 N.
82	Trillium grandiflorum. Salisb	Collection.
83	Uvularia grandiflora. Smith	“
84	“ perfoliata. L	“
85	Smilacina racemosa. L	123 V.
86	“ stellata. Desf	120 W.
87	Convallaria majalis. L	120 W, 73 J, 42 M.
88	“ japonica	Collection.
89	Majanthemum bifoliatum. L	42 M, 43 I, 120 W.
90	Polygonatum latifolium. L	120 W.
91	“ multiflorum. Willd	120 W, 40 P.
92	“ giganteum. Dictr	Collection.
93	Ophiopogon Japonicum. Fol. var. Sieb	“
94	“ Jaburan. Fol. var. Sieb	“
95	Tricyrtis hirta	“
96	“ nigra grandiflora. Hort	“

HARDY PERENNIAL AND ALPINE PLANTS—(*Continued.*)

	B. MONOCOTYLEDONES. SMILACEÆ.	LOCALITY. (Reference to Map.)
97	Rhuscus aculeatus. L.	120 W, 46 K.
98	“ thyppophyllum. Kth	Collection.
99	“ racemosus. L.	120 W, 46 K.
100	“ Hyppoglessum. Kth	Collection.
	LILIACEÆ.	
101	Tulipa sylvestris. L.	120 W, 42 N.
102	“ cornuta Redouti	Collection.
103	“ præcox. Gr. et. Godr	120 W, 46 K, 12, 13 and 14 Z^1.
104	“ turcica. Roth	120 W.
105	“ Gesneriana. Bunge	120 W.
106	“ Oculis Solis. St. Amand	12, 13 and 14 Z^1, 120 W.
107	Narcissus poeticus. L.	46 K, 42 N.
108	“ Tacetta. L.	12, 13 and 14 Z^1.
109	“ incomparabilis. Hort	120 W.
110	“ centifolius. Hort	Collection.
111	“ biflorus. Hort	“
112	“ Corbaleria. Willd	120 W, 46 K.
113	“ radiiflorus. Lk	Collection.
114	“ angustifolius. Hort	“
115	“ major. Hort	“
116	“ moschatus. Hort	120 W.
117	“ Jonquilla. Hort	120 W, 12, 13 and 14 Z^1.
118	Fritillaria meleagris. L.	Collection.
119	“ imperialis. L.	120 W.
120	“ persica. Pall	120 W.
121	“ Kamschatica. Ledb	Collection.
122	Lilium Philadelphicum. L.	104 H.
123	“ Canadense. L.	111 H.

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued).*

	B. MONOCOTYLEDONES. LILIACEÆ.	LOCALITY. (Reference to Map.)
124	Lilium saperbum. L.	Collection.
125	“ longiflorum. Thunb.	120 W.
126	“ auratum. Lindl.	29 G, 123 Y, 47 K.
127	“ tigrinum. L.	123 Y, 47 I.
128	“ testaceum. D. C.	Collection.
129	“ speciosum. Thunb.	123 Y, 47 I.
130	“ lancifolium. Hort.	47 I, 47 K.
131	“ umbellatum. Thunb.	120 W.
132	“ Martagon. L.	Collection.
133	“ bulbiferum. L.	47 K.
134	“ eximeum. Van Houtte.	Collection.
135	“ giganteum. Herb.	“
136	“ candidum. L.	147 K, 47 I, 121 V.
137	“ Colchicum. Hort.	Collection.
138	Erythronium dens-canis. L.	120 W.
139	“ albidum. Nutt.	Collection.
140	“ americanum. Smth.	125 O, 126 P, 122 M, 42 N.
141	Galanthus nivalis. L.	47 I, 120 W.
142	Leucojum vernum. L.	120 W.
143	“ æstivum. L.	Collection.
	AMARYLLIDEÆ.	
144	Sternbergia lutea.	Collection.
145	Crinum capense. (Amar longifol).	“
146	Alstroemeria chilensis. Hort.	“
	HEMEROCALLIDEÆ.	
147	Hemerocallis fulva. L.	19 W, 6 O, 27 L.
148	“ flava. Lk.	Collection.

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued)*.

	B. MONOCOTYLEDONES. HEMEROCALLIDEÆ.	LOCALITY. (Reference to Map.)
149	Hemerocallis lutea. Kth	120 W.
150	“ Kwanso. Sieb	Collection.
151	“ graminifolia. Bot. Mag	“
152	Funkia ovata. Sprgl	120 W.
153	“ “ albo-marginata. Hook	120 W.
154	“ lancifolia. Sprgl	Collection.
155	“ marginata. Sieb	“
156	“ undulata. O et Dietr	120 W, 46 O.
157	“ Sieboldiana. Hook	Collection.
158	“ cucullata. Hort	“
159	“ alba (grandiflora). Hort	46 O, 45 N.
160	“ Fortunis. Sieb	Collection.
161	“ subcordata. Sprgl	“
162	Yucca filamentosa. L	3 and 5 P, 36 N, 57 G, 63 E.
163	“ flaccida. Tucc	119 U.
164	“ gloriosa. L	Collection.
	ASPHODELEÆ.	
165	Asphodelus luteus	Collection.
166	“ albus	“
167	Anthericum Liliago	119 U, 120 X.
168	“ Liliastrum	Collection.
169	“ ramosum	“
170	Asparagus officinalis. L	46 H.
171	“ longifolius. D. C	Collection.
172	“ verticillatus. D. O	“
173	Ornithogalum umbellatum. L	“
174	“ nutans. Willd	“
175	“ lacteum. Willd	“

	B. MONOCOTYLEDONES. ASPHODELEÆ.	LOCALITY. (Reference to Map.)
176	Scilla Sibirica. Hort	46 H, 120 X, 119 U.
177	" amoena. L	Collection.
178	" bifolia. Willd	"
179	" campanulata. L	"
180	" cernua. Kth. and B	119 U.
181	Hyacinthus orientalis. L	12, 13 and 14 Z, 46 H.
182	Muscari botryoides. L	Collection.
183	" comosus. L	"
184	" mosohatus. L	"
185	" plumosus. Willd	"
186	" racemosus. Hort	"
187	Allium Moly. L	"
188	" azureum. Hort	"
189	" Victorale	"
190	Aletris farinosa. L	"
191	Tritoma Uvaria. Lk	"
192	" Roeperi. Lk	"
193	" grandiflora. Hort	"
	COMMELINEÆ.	
194	Tradescantia virginica. L	24 N, 3 N, 18 X, 21 Z, 14 Q.
195	" " flora pleno. Hort	Collection.
196	" viridis. Hort	"
	PONTEDERIACEÆ.	
197	Pontederia cordata. L	Collection.
	IRIDEÆ.	
198	Crocus vernus. L	12, 13 and 14 Z, 73 L.
199	" sativus. L	119 U.

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued)*.

	B. MONOCOTYLEDONES. IRIDEÆ.	LOCALITY. (Reference to Map.)
200	Crocus speciosus. Lk	Collection.
201	Gladiolus communis. L	43 L, 119 U.
202	" Byzanthinus. Willd	119 U.
203	" Colvilli. Lk	Collection.
204	Iris versicolor. L	45 N, 116 J.
205	" Virginica. L	45 N, 116 J, 123 N.
206	" albiensis. Hort	Collection.
207	" fœtidissima fol. var. Hort	"
208	" Germanica. L	123 N, 116 J, 45 N, 35 O.
209	" Florentina. Kch	35 O, 119 U.
210	" graminea. Hort	119 U.
211	" Guildenstædti. Willd	Collection.
212	" Japonica. Sieb	45 N, 6 O, 119 U.
213	" Pseudo-acorus. L	Collection.
214	" pumila. L	119 U, 63 F, 47 Q.
215	" sambucina. Lk	Collection.
216	" cuprea. Pursh	"
217	" cristata. Ait	"
218	Pardanthus Chinensis. Ker	44 Q, 119 U.
219	Tritelleya uniflora. V. H	Collection.
220	Sisyrinchium Bermudianum. L	"
	ORCHIDEÆ.	
221	Orchis latifolia. L	Collection.
222	" maculata. L	"
223	" militaris. L	"
224	" morio. L	"
225	" mascula. L	"
226	Ophrys apifera	"

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued.)*

	B. MONOCOTYLEDONES. ORCHIDEÆ.	LOCALITY. (Reference to Map.)
227	Habenaria tridentata. Hook	Collection.
228	“ ciliaris. R. Br	“
229	Goodiera repens. R. Br	“
230	“ pubescens. R. Br	“
231	Spiranthes latifolia. Ton	“
232	“ graminea. Lindl	“
233	Cacallorhiza multiflora. Nutt	“
234	Cypripedium parviflorum. Salieb	“
235	“ spectabilis. Scotz	“
236	“ acaule. Ait	“
237	“ Calceolus. L	“
238	“ pubescens. Willd	“
	AROIDEÆ.	
239	Arisaema triphylla. Torr	46 N.
240	“ Dracontium. Schott	Collection.
241	“ ringens. Lucc	“
242	“ serotina. Wort	“
243	Peltandra Virginica. Rafl	“
244	Calla palustris. L	46 N.
245	Symplocarpus foetidus. Salisb	116 L, 115 E, 122 N, 104 B.
246	Orontium aquaticum. L	Collection.
247	“ Japonicum. S. and L	“
248	Acorus Calamus. L	46 N, 116 I.
249	“ gramiaifolius, fol. var. Hort	Collection.
250	Arum Dracunculus. L	46 N, 119 U.
251	“ maculatum. Sch	Collection.
252	“ italicum. Endl	“
253	“ cornutum. Willd	“

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued.)*

	C. DICOTYLEDONES. RANUNCULACEÆ.	LOCALITY. (Reference to Map.)
254	Ranunculus repens. L. var. fl. pl	45 P.
255	“ acris. L. var. fl. pl	Collection.
256	“ aconitifolius, pl. Hort	“
257	“ Asiaticus. L	“
258	Caltha palustris. L. var. fl. pl	“
259	Trollius Europaeus. D. C	“
260	“ Asiaticus. Bot. Mag	“
261	“ laxus. Salisb	
262	Helleborus niger. L	45 P, 119 U, 44 Q.
263	“ viridis. D. C	Collection.
264	“ purpurascens. B. F. G	“
265	“ Orientalis. R. Br	“
266	Paeonia herbacea. L	
267	“ officinalis. L	
268	“ tennifolia, fl. pl. Hort	
269	Aquilegia Canadensis. L	54 H, 45 G, 50 K, 133 K.
270	“ vulgaris. D. C	43 E, 63 F, 46 L.
271	“ Skinneri. V. H	Collection.
272	“ alpina. Rchb	“
273	“ leptoceras. Hort	“
274	“ Sibirica. Pall	“
275	“ stellata. Reg	“
276	“ jucunda. Hort	“
277	“ glandulosa. Sk	“
278	Delphinium exaltatum. Ait	“
279	“ azureum. Mchx	“
280	“ grandiflorum. Hook	“
281	“ Chinense. L	63 I, 120 W.

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued)*.

	C. DICOTYLEDONES. Ranunculaceæ.	Locality. (Reference to Map.)
282	Delphinium elatum. Rchb	46 L, 119 U, 120 W.
283	“ formosum. Doogl	46 M, 119 U, 120 W.
284	“ tricorne. Michx	Collection.
285	“ nudicaule. Tor. and Gr	“
286	Aconitum Napellus. D. C	“
287	“ Japonicum. Klf	“
288	“ ochrobeucum. D. C	“
289	“ Stoerkianum. Nees	“
290	“ variegatum. Rchb	“
291	Actæa spicata. L	120 W.
292	“ alba. Brgel	Collection.
293	“ brachypoda. Eli	“
294	Cimicifuga racemosa. Eli	120 W.
295	Clematis Viorna. L	Collection.
296	“ cylindrica. Sinn	“
297	“ Virginica. L	120 W.
298	“ montana. T. and Gr	Collection.
299	“ ereoba. D. C	“
300	“ integrifolia. Bot. Mag	“
301	“ Alpina. D. C	“
302	“ angustifolia. D. C	“
303	Adonis vernalis. L	63 and 64 F, 120 W.
304	Anemone multiflora. D. C	Collection.
305	“ narcissiflora. Bot. Mag	“
306	“ Japonica. Bot. Mag	“
307	“ coronaria. D. C	“
308	“ Pennsylvanica. L	“
309	“ palmata. R. Br	“

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued)*.

	C. DICOTYLEDONES. RANUNCULACEÆ.	LOCALITY. (Reference to Map.)
310	Anemone nemorosa. L.	110, 111, 112 H and I.
311	" Appenina. D. C.	Collection.
312	" sylvestris. L.	116, 117, 118 K.
313	" Pulsatilla. L.	Collection.
314	" ranunculoides pl. Hort.	"
315	Hepatica triloba. Chaip.	119 L, 117 K.
316	Thalictrum anemoneoides. Mchx.	116 L, 116, 110-112 K.
317	" dioicum. L.	127 Q.
318	" clavatum. D. C.	Collection.
319	" aquilegiæfolium. D. C.	"
320	" minus. D. C.	"
321	" glaucum. Hort.	"
	BERBERIDEÆ.	
322	Caulophyllum thalictroides. Mchx.	Collection.
323	Diphylla cymosa. Mchx.	"
324	Jeffersonia diphylla. Pers.	"
325	Podophyllum peltatum. L.	116 O, 113 N.
326	" Emodi. Wall.	Collection.
	NYMPHÆACEÆ.	
327	Brassenia peltata. Pursh.	Collection.
328	Nelumbium luteum. Willd.	"
329	Nymphæa odorata. Ait.	45 K, 45 L, 46 M.
330	" alba. L.	Collection.
331	Nuphar advena. Ait.	45 K, 46 M.
332	" luteum. Smith.	Collection.
	SARRACENIACEÆ.	
333	Sarracenia purpurea.	Collcetion.

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued)*.

	C. DICOTYLEDONES. PAPAVERACEÆ.	LOCALITY. (Reference to Map.)
334	Papaver orientale. L.	Collection.
335	" bracteatum. D. C.	"
336	" nudicaule. D. C.	Collection.
337	" alpinum. D. C.	"
338	Chelidonium majus. L.	"
339	" Japonicum. Sieb.	"
340	Bocconia cordata. Willd.	27 R, 36 N, 118 M.
341	Sanguinaria Canadensis. L.	Collection.
	FUMARIACEÆ.	
342	Adlumia cirrhosa. Rafl.	44 M.
343	Dicentra cucullaria. D. C.	44 M, 112 E.
344	" eximia. D. C.	Collection.
345	" spectabilis. Rgl.	4 Q, 3 M, 22 V, 37 Z.
346	Corydalis aurea. Willd.	Collection.
347	" nobilis. D. C.	"
348	" bulbosa. D. C.	"
349	" capnoidea. Hort.	"
	CRUCIFERÆ.	
350	Cardamine pratensis. L.	"
351	Arabis albida. D. C.	"
352	" bellidifolia. D. C.	"
353	" lucida. Fol. var. Hort.	"
354	Draba alpina. D. C.	"
355	" aizoides. D. C.	"
356	Alyssum saxatile. D. C.	"
357	" alpestre. D. C.	"
358	Aubrietia deltoidea. D. C.	"

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued).*

	C. DICOTYLEDONES. CRUCIFERÆ.	LOCALITY. (Reference to Map.)
359	Aubrietia purpurea. B. F. G	Collection.
360	" græca. D. C	"
361	Cheiranthus alpinus. D. C	"
362	Erinus alpinus. D. C	"
363	Iberis Gibraltaica. Bot. Mag	"
364	" Tenoriana. D. C	"
365	" sempervirens. L	119 U.
	VIOLACEÆ.	
366	Viola odorata. L	Collection.
367	" cornuta. D. C	45 P, 62 and 63 F.
368	" lutea. Hort	Collection.
369	" pedata. B. F. G	"
370	" altaica. Pall	"
371	" cucullata. Ait	42–44 L, 56–58 C.
372	" Canadensis. L	42–44 L, 56–58 C.
373	" tricolor. Var. Hort	Collection.
374	" rotundifolia. Mchx	"
375	Erpetion reniforme. Mill	"
	CISTACEÆ.	
376	Helianthemum vulgare. L	63 F.
377	" mutabile. D. C	Collection.
378	" alpestre. D. C	"
379	" Canadenses. Mchx	63 F.
380	" corymbosum. Mchx	Collection.
381	Hudsonia ericoides. L	"
	DROSERACEÆ.	
382	Drosera rotundifolia. L	"
383	" filiformis. Raf	"

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued)*.

	C. DICOTYLEDONES. HYPERICACEÆ.	LOCALITY. (Reference to Map.)
384	Hypericum perforatum. L.	63 F.
385	“ nudiflorum. Mchx	Collection.
386	“ Canadense. L.	63 F.
	CARYOPHYLLEÆ.	
387	Dianthus Caryophyllus. L.	Collection.
388	“ fimbriatus. D. C.	119 U.
389	“ petræus. B. F. G.	Collection.
390	“ barbatus. D. C.	63 T, 2–5 O.
391	“ plumarius. D. C.	4 O, 65 F.
392	“ superbus. Willd.	Collection.
393	“ Chinensis. Hort.	2–5 O, 29 G.
394	“ deltoideus. L.	Collection.
395	“ mulei. Hort.	“
396	“ imperialis. Hort.	“
397	“ laciniatus. Hort.	29 G, 65 F, 45 P.
398	“ arenarius. L.	Collection.
399	“ Seguerii. D. C.	“
400	“ Tymphrestens. Hort. Harg.	“
401	Saponaria officinalis. L.	45 P, 50 K.
402	“ Caucasica. Hort. V. H.	Collection.
403	Silene Pennsylvanica. Mchx.	“
404	“ Schafta. A. Br.	“
405	“ Regia. Suris.	“
406	“ acaulis. L.	“
407	“ alpestris. D. C.	“
408	“ maritima. D. C.	“
409	“ Saxifraga. D. C.	“
410	Lychnis flos-cuculi. L.	“

	C. DICOTYLEDONES. CARYOPHYLLEÆ.	LOCALITY. (Reference to Map.)
411	Lychnis viscasia. L.	Collection.
412	Stellaria Holostea. L.	119 and 120 E.
413	Cerastium Biebersteini. Lk.	63 and 64 F.
414	“ tomentosum. D. C.	63 and 64 F.
415	“ alpinum. D. C.	Collection.
416	Sagina procumbens. L.	119 E.
	PORTULACEÆ.	
417	Claytonia Virginica. L.	114 and 115 D.
	MALVACEÆ.	
418	Malva rotundifolia. L.	Collection.
419	“ moschata. L.	“
420	Althæa rosea. Cav. var. pl.	32 Z, 130 K, 132 and 133 M.
421	Callirrhoe pedata. Hort.	Collection.
422	Hybiscus moscheutos. L.	“
423	“ militaris. Cav.	120–122 N, 45 N.
424	“ grandiflorus. Mchx.	45 N, 119 U.
	LINACEÆ.	
425	Linum flavum. D. C.	Collection.
426	“ perenne. Korh.	45 Q, 63 F.
	GERANIACEÆ.	
427	Geranium sanguineum. L.	Collection.
428	“ tuberosum. D. C.	45 Q.
429	“ pratense. L.	45 Q.
430	“ aconitifolium. D. C.	Collection.
431	“ nodosum. D. C.	“
432	Erodium Reichardii. D. C.	“

	C. DICOTYLEDONES.	LOCALITY. (Reference to Map.)
	OXALIDEÆ.	
433	Oxalis violacea. L.	Collection.
434	“ corniculata macrantha. Hort.	45 Q.
	RUTACEÆ.	
435	Ruta graveolens. L.	Collection.
	ONAGRARIÆ.	
436	Gaura Lindheimeri. Hort.	“
437	Epilobium angustifolium. L.	“
438	“ alpinum. L.	“
439	Oenothera fruticosa. L.	45 Q.
440	“ chrysantha. Mchx.	Collection.
441	“ pumila. L.	“
442	“ Missouriensis. B. M.	“
443	“ riparia. Nutt.	“
444	“ Frazeri. Hort.	“
445	“ speciosa. Hort.	“
446	“ taraxacifolia. Hort.	“
	MELASTOMEÆ.	
447	Rhexia Virginica. L.	“
	LYTHRACEÆ.	
448	Lythrum Salicaria. L.	“
449	“ elatum. Pursh.	“
450	“ speciosum. Hort.	“
	CACTEÆ.	
451	Opuntia vulgaris. L.	“
452	“ Rafinesqui. Engolm.	45 Q, 63 F, 3 P, 131 and 132 L.

	C. DICOTYLEDONES.	LOCALITY. (Reference to Map.)
	PASSIFLOREÆ.	
453	Passiflora lutea. L.	Collection.
454	" incarnata. L.	"
	CUCURBITACEÆ.	
455	Thladiantha dubia. Kth	46 M.
	UMBELLIFORÆ.	
456	Eryngium amethystinum. D. C	Collection.
457	" planum. D. C	"
458	" aquaticum. L.	"
459	" alpinum. D. C	"
460	Heracleum lanatum. Mchx	
461	" persicum. Lk	41 R, 21 Z, 65 G.
462	" sibiricum. L.	119 U and Collection.
463	" asperum. Willd	Collection.
464	" eminens. C. Korh	"
465	" Lehmannianum. Bunge	"
466	" Leichtlinii. Sieb	"
467	" platytænium. Sieb	"
468	" spondilium. L.	"
	CORNACEÆ.	
469	Cornus Canadensis. L.	"
	RUBIACEÆ.	
470	Galium Aparine. L.	119 U.
471	Mitchella repens. L.	Collection.
472	Asperula odorata. L.	40 and 41 M.
473	Crucianella stylosa. D. C	59 E.
474	Rubia tinctoria. L.	Collection.

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued)*.

	C. DICOTYLEDONES. VALERIANEÆ.	LOCALITY. (Reference to Map.)
475	Centranthus ruber. Willd	Collection.
476	Valeriana odorata. Hort	“
	COMPOSITÆ.	
477	Vernonia novæ-boracensis. Willd	“
478	Liatris squarrosa. Willd	120 W, 44 L.
479	“ scariosa. Willd	Collection.
480	“ elegans. Willd	“
481	“ spicata. Willd	120 W, 44 L.
482	Eupatorium purpureum. L	Collection.
483	“ album. L	“
484	“ aromaticum. L	“
485	Mikania scandens. L	“
486	Nardosmia fragrans. Willd	“
487	“ palmata. Hook	“
488	Tussilago Farfara. L	“
489	“ Petasites. L	120 W.
490	Petasites nivea. Kch	Collection.
491	“ alpina. Kch	“
492	Aster alpinus. D. C	“
493	“ grandiflorus. R. Br	“
494	“ novæ-anglicæ. L	96 B, 102 K, 100 I, 128 S.
495	“ squarrulosus. D. C	Collection.
496	“ dumosus. D. C	“
497	“ ericoides. L	128 S, 102 K, 112–114 O.
498	“ horizontalis. L	114 O, 120 R.
499	“ humifosus. L	120 R, 116 M.
500	“ spectabilis. Ait	Collection.
501	“ multiflorus. Ait	116 M, 120 and 121 O.

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued).*

	C. DICOTYLEDONES. COMPOSITÆ.	LOCALITY. (Reference to Map.)
502	Erigeron glabellum. Nutt	Collection.
503	“ grandiflorum. Hort	“
504	“ Hoopesii. Hort	“
505	Boltonia glastifolia. L'Her	“
506	Bellis perennis. L	45 Q.
507	Solidago multiradiata. L	Collection.
508	“ ambigua. L	113–115 O.
509	“ Canadensis. L	123 O.
510	“ latifolia. L	123 O.
511	“ mollis. L	Collection.
512	“ Virga-aurea. L	113–115 O, 114 P, 109 and 110 D.
513	“ odora. Ait	101–103 B.
514	Polymnia Canadensis. L	Collection.
515	“ Uvedalia. L	“
516	Silphium laciniatum. L	“
517	“ perfoliatum	120 T.
518	Echinacea purpurea. Mœnch	Collection.
519	“ intermedia. Hook	“
520	“ angustifolia. D. C	“
521	Rudbeckia speciosa. Wendroth	“
522	“ fulgida. Ait	120 T.
523	“ hirta. L	Collection.
524	“ laciniata. L	“
525	Helianthus angustifolius. L	120 T.
526	“ Orgialis. Hort	Collection.
527	“ multiflorus. Fl. pl. Hort	“
528	“ tuberosus. L	“
529	“ stramosus mollis. L	“

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued).*

	C. DICOTYLEDONES. COMPOSITÆ.	LOCALITY. (Reference to Map.)
530	Corcopsis tripteris. L.	Collection.
531	Achillea millefolium rubrum. Hort.	119 and 120 T, 22 Y, 4 N.
532	" Ptarmica. L.	119 and 120 T.
533	" alpina. D. C.	Collection.
534	" nobilis. Willd.	"
535	" tomentosa. D. C.	44 P, 22 Y, 4 N, 58 and 59 E.
536	Matricaria eximia. Hort.	58 and 59 E, 22 Y.
537	" capensis. Willd.	Collection.
538	" Parthenium. L.	"
539	Tanacetum vulgare. L.	102 T, 4 X, 121 W.
540	Artemisia Stelleriana. Reg.	102 T, 4 N, 121 W, 59 E, 44 P.
541	" Dracunculus. L.	Collection.
542	" alpina. D. C.	"
543	" absinthium. L.	"
544	" frigida. Willd.	"
545	Gnaphalium uliginosum. L.	"
546	" Leontopodium. L.	"
547	" carpaticum. D. C.	"
548	" purpureum.	44 P.
549	Antennaria margaritacea. R. Br.	Collection.
550	" dioica. D. C.	44 P, 120 T.
551	" plantaginea. D. C.	Collection.
552	" tomentosa. Hort.	"
553	Arnica montana. D. C.	"
554	Onopordon acaule. D. C.	"
555	" tauricum. D. C.	"
556	Cynara carduncullus. Lk.	35 N.
557	" Scolymus. L.	35 N, 121 W.

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued)*.

	C. DICOTYLEDONES. COMPOSITÆ.	LOCALITY. (Reference to Map.)
558	Doronicum caucasicum. D. C.	Collection.
559	“ orientale. L.	“
560	Hieracium aurantiacum. L.	“
	LOBELIACEÆ.	
561	Lobelia syphilitica. L.	105, 106 B.
562	“ cardinalis. L.	46 L, 46 N.
563	“ fulgens. Kth.	Collection.
564	“ “ hybrida. Hort.	“
	CAMPANULEÆ.	
565	Campanula Americana. L.	46 L, 59 E.
566	“ glomerata. D. C.	Collection.
567	“ latifolia. D. C.	“
568	“ Trachelium. D. C.	“
569	“ rhomboidalis. D. C.	“
570	“ pumila. Bot. Mag.	“
571	“ pulla. Lh.	“
572	“ pusilla. Hort.	“
573	“ muralis. Willd.	“
574	“ medium. L.	“
575	“ garganica. R. Br.	“
576	“ barbata. Willd.	“
577	“ carpatica. Bot. Mag.	59 E.
578	“ alliariaefolia. Kch.	Collection.
579	“ persicifolia. Willd.	120 W.
580	“ soldanellifolia. Hort.	Collection.
581	Wahlenbergia grandiflora. Lk.	“

	C. DICOTYLEDONES. ERICEÆ.	LOCALITY. (Reference to Map.)
582	Epigæa repens. L.	Collection.
583	Azalea procumbens. D. C.	“
584	Leiophyllum buxifolium. Ell.	“
585	Grimaphila maculata. Pursh.	“
	PLUMBAGINEÆ.	
586	Plumbago Larpentae. Bot. Mag.	44 P.
587	Acantholimon glumaceum. D. C.	Collection.
588	Statice latifolia. Willd.	“
589	“ tartarica. D. C.	“
590	“ Gmelini. Pall.	“
591	“ Sareptana. Pall.	“
592	“ Limonium. L.	“
	PRIMULACEÆ.	
593	Primula Auricula. L.	119 U.
594	“ veris. L.	59 E, 44 P.
595	“ acanlis. Hort.	119 U.
596	“ farinosa. L.	Collection.
597	“ cortusoides. D. C.	“
598	“ japonica. Sieb.	“
599	“ integrifolia. Bot. Mag.	“
600	Cyclamen Europæum. L.	“
601	Lysimachia thyrsiflora. L.	“
602	“ nummularia. L.	2–5 O, 132 H, 46 K.
603	Soldanella alpina. D. C.	Collection.
604	“ minima. D. C.	“
	SCROPHULARINEÆ.	
605	Mazus pumilio. D. C.	Collection.

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued).*

	C. DICOTYLEDONES. SCROPHULARINEÆ.	LOCALITY. (Reference to Map.)
606	Linaria Cymballaria. D. C	Collection.
607	" vulgaris. Mill	"
608	" alpina. D. C	"
609	" triornithophora. Bot. Mag	"
610	Anthirhinum majus. L	57, 58, E.
611	Verbascum Blattaria. L	37 E.
612	Scrophularia Japonica. B. M	Collection.
613	Chelone glabra. L	"
614	" Lyonii. Hort	"
615	Penstemon pubescens. Solland	"
616	" Digitalis. Nutt	"
617	" ovatus. Willd	"
618	" barbatus. Bot. Reg	"
619	" procerus. Bot. Reg	"
620	Mimulus cardinalis. Willd	"
621	" atroroseus. Hort	"
622	Veronica maritima. W	"
623	" incana. D. C	"
624	" gentianoides. D. C	22 Z.
625	" saxatilis. Kch	Collection.
626	" prostrata. Willd	"
627	" multifida. Bot. Mag	"
628	" caucasica. Bot. Col	"
629	" sibirica. L	119 U.
630	" alpina. L	Collection.
	ACANTHACEÆ.	
631	Ruellia streptans. L	Collection.
632	Acanthus spinosus. L	"

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued)*.

	C. DICOTYLEDONES. ACANTHACEÆ.	LOCALITY. (Reference to Map.)
633	Acanthus Lusitanicus. D. C	Collection.
634	“ mollis. D. C	“
	VERBENACEÆ.	
635	Lippia repens. D. C	Collection.
	LABIATÆ.	
636	Teucrium pyrenaicum. Bot. Reg	
637	“ marum. L	
638	“ Canadense. L	11 D, 39 V, 50 J.
639	Mentha piperita. L	Collection.
640	Hyssopus officinalis. L	“
641	Origanum vulgare.	“
642	Thymus Serpyllum. L	124 T.
643	“ Corsicus. Pers	Collection.
644	“ citriodorus. Hort	48 Q.
645	Melissa officinalis. L	48 Q.
646	Salvia officinalis. L	48 Q.
647	“ pratensis. L	Collection.
648	Horminum Pyrenaicum. D. C	“
649	Monarda didyma.	48 Q, 59 E.
650	“ fistulosa. L	Collection.
651	Dracocephalum Ruisiolanum. D. C	“
652	“ altaicum. D. C	Collection.
653	“ grandiflorum. D. C	“
654	Prunella vulgaris. L	119 U.
655	Stachys lanata. D. C	4, 5 O, 12, 13 L and 0Z.
656	“ coerulea. D. C	Collection.
657	Phlomis tuberosa. L	“

	C. DICOTYLEDONES.	LOCALITY.
	BORAGINEÆ.	(Reference to Map.)
658	Echium creticum. D. C	Collection.
659	Symphitum officinale. L	“
660	“ asperum. Hort	“
661	Lithospermum fruticosum. B. M	“
662	Myosotis palustris. With	44 K, L, M and N.
663	“ sylvatica. Kch	58, 59 E.
664	Omphalodes verna. Willd	45, 46 Q.
665	Anchusa sempervirens. D. C	Collection.
666	“ italica. D. C	“
667	Nordmannia cordifolia. D. C	“
668	Lindelophia spertabilis. Hort	“
669	Pulmonaria officinalis. L	“
670	“ Virginica. Willd	119 U.
671	“ sacharata. Hort	Collection.
	POLEMONIACEÆ.	
672	Polemonium coeruleum. L	Collection.
673	Phlox paniculata. L	4 J, 23 Z, 34 O and Q.
674	“ ovata. L	Collection.
675	“ procumbens. Lehm	“
676	“ reptans. Michx	120, 121 W.
677	“ divaricata. Mchx	Collection.
678	“ verna. Willd	120, 121 W.
679	“ setacea. L	48 Q, 22 Z, 3-5 O.
680	“ omniflora. Hort	Collection.
681	Pixidanthera barbulata. Mchx	“
	CONVOLVULACEÆ.	
682	Calystegia sepium. R. Br	124 O.

	C. DICOTYLEDONES.	LOCALITY. (Reference to Map.)
	CONVOLVULACEÆ.	
683	Calystegia dahurica. Willd	Collection.
684	" pubescens fl. pl. Hort	122 V.
	SOLANEÆ.	
685	Solanum Dulcamara. L	132 L, 44 I.
686	Physalis Alkekengi. L	Collection.
687	Datura Metel. Willd	"
688	Nierembergia rivularis	45 N.
	GENTIANEÆ.	
689	Erythræa centaurium. Pers	Collection.
690	Gentiana acaulis. L	"
691	" quinqueflora. Lamb	"
692	" lutea	"
693	" septemfida. B. Mag	"
694	" asclepiadea. Bot. Mag	"
695	Menyanthes trifoliata. L	"
	LOGANIACEÆ.	
696	Gelsemium luteum. Willd	Collection.
697	Spigelia Marylandica. L	"
	APOCYNEÆ.	
698	Apocynum androsæmifolium. Moench	Collection.
699	Vinca minor. L	45 N, 45 K, 46 J, 44 L.
700	" major. Willd	45 I, 45 N, 44 Q.
	ASCLEPIADEÆ.	
701	Vincetoxicum nigrum. Moench	44 Q, 121 V.
702	Asclepias Cornuti. Decaisn	44 Q, 85 B, 12 C.

	C. DICOTYLEDONES.	LOCALITY. (Reference to Map.)
	ASCLEPIADEÆ.	
703	Asclepias purpurea. L.	Collection.
704	" syriaca. L.	"
705	" incarnata. L.	"
706	" tuberosa. L.	119 U.
	ARISTOLOCHIACEÆ.	
707	Asarum Europaeum. L.	Collection.
708	" Canadense. L	"
709	Aristolochia Clematitis. L.	"
710	" Serpentaria. L.	"
	POLYGONEÆ.	
711	Polygonum Bistorta. L.	Collection.
712	" Japonicum. Sieb.	119 U, 37 K.
713	Rheum undulatum. Willd.	Collection.
714	" palmatum. Wall.	"
	EUPHORBIACEÆ.	
715	Euphorbia Cyparissias. L.	28 G, 119 U.
716	" variegata. Hort.	Collection.
717	" Lathyris. L.	"
718	Pachysandra procumbens. Michx.	"
719	" terminalis, fol. var. Hort.	"
	URTICEÆ.	
720	Humulus Lupulus. L.	13, O and P.
	POLYGALEÆ.	
721	Polygala Chamaebuxus. D. C.	Collection.
	LEGUMINOSÆ.	
722	Lupinus polyphyllus. Willd.	Collection.

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued).*

	C. DICOTYLEDONES. LEGUMINOSÆ.	LOCALITY. (Reference to Map.)
723	Lupinus Douglasii. Bot. Mag	Collection.
724	“ macrophyllus. B. F. G	“
725	Psoralia floribunda. Nutt	“
726	Astragalus alpinus. D. C	“
727	“ alopecuroides. D. C	“
728	“ galegæformis. D. C	“
729	Apios tuberosa. Willd	13 P and Q.
730	Oxytropis campestris. D. C	Collection.
731	Glycyrrhiza glabra. L	“
732	Hedysarum coronarium. Willd	“
733	“ penduliflorum. Hort	“
734	Lotus corniculatus. D. C	“
735	Lathyrus grandiflorus. Willd	“
736	“ latifolius. D. C	22 and 23 Z, 48 O, 119 V.
737	Baptisia Australis. R. Br	119 V, 120 U.
738	“ alba. R. Br	Collection.
739	Ononis spinosa. L	“
740	“ fruticosa. B. Mag	“
741	“ rotundifolia. Willd	“
742	Galega Persica. Willd	121 X.
743	Trifolium rubens. D. C	Collection.
744	“ repens nigrum. Hort	121 X.
745	Thermopsis fabacea. D. C	Collection.
746	Cassia Marilandica. L	118 K, 127 R, 134 W, 123 Z.
	ROSACEÆ.	
747	Gillenia trifoliata. Moench	Collection.
748	Alchemilla alpina. L	“
749	Dryas octopetata. D. C	“

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued)*.

	C. DICOTYLEDONES. ROSACEÆ.	LOCALITY. (Reference to Map.)
750	Dryas Drummondii. Bot. Mag.	Collection.
751	Geum coccineum. Willd	59 E, 119 X.
752	" macrophyllum. Willd	Collection.
753	Waldsteinia fragarioides. Prat	"
754	Sibbaldia procumbens. L.	"
755	Potentilla formosa. Willd	"
756	" eximia. Hort	"
757	" Mac-Nabiana. Hort	"
758	" atrosanguinea. Hort	"
759	Fragaria vesca. L. fol. var.	119 X, 28 C.
760	Rubus antarcticus. D. C	Collection.
	SAXIFRAGINEÆ.	
761	Spiræa Ulmaria. L.	119 X, 21 U and V, 27 Z.
762	" filipendula. Willd	Collection.
763	" Aruncus. L	"
764	" lobata. Willd	119 U.
765	" pedata. Willd	Collection.
766	" venusta. Hort	"
767	" palmata. Sieb. et Rgl	"
768	Hotteya Japonica. Bot. Mag	58 E, 48 Q.
769	Parnassia palustris. L	Collection.
770	Astilbe decandra. Don	"
771	" rivularis. Willd	"
772	Saxifraga oppositifolia. L.	"
773	" aizoides. L	"
774	" tricuspidata. Retz	"
775	" Aizoon. Jac.q	"
776	" Virginiensis. Mchx.	128-130 J and K, 116 Q.

HARDY PERENNIAL AND ALPINE PLANTS—*(Continued)*.

	C. DICOTYLEDONES. SAXIFRAGINEÆ.	LOCALITY. (Reference to Map.)
777	Saxifraga granulata. L. var. pl.	Collection.
778	" crassifolia. D. C.	"
779	" cordifolia. D. C.	"
780	" umbrosa. D. C.	"
781	" longifolia. Bot. Mag.	Collection.
782	" pyramidalis. D. C.	"
783	" oppositifolia. D. C.	"
784	" hypnoides. D. C.	"
785	" cæspitosa. Rchb.	"
786	Heucheria Americana. L.	"
787	" cylindrica. Bot. Mag.	"
788	" caulescens. D. C.	"
789	Mitella cordifolia. Lamb.	"
790	Tiarella cordifolia. L.	"
	CRASSULACEÆ.	
791	Sedum acre. L.	117 B, 127 I, 117 R, 126 X.
792	" hexangulare. Willd.	Collection.
793	" ternatum. Michx.	122 L.
794	" dasyphyllum. D. C.	119 U.
795	" Telephium fol. var. Hort.	119 U.
796	" telephioides. Mchx.	Collection.
797	" Rhodiola. D. C.	119 U.
798	" Maximowiszii. Reg.	Collection.
799	" Fabaria. Hort.	58 E.
800	" maximum. Hort.	119 U.
801	" Aizoon. L.	Collection.
802	" Goersii. L.	119 U.
803	" Sieboldii.	119 U

	C. DICOTYLEDONES. CRASSULACEÆ.	LOCALITY. (Reference to Map.)
804	Sedum oppositifolium	Collection.
805	“ populifolium. L.	“
806	“ camtschaticum. Lk.	“
807	“ reflexum. L.	119 U.
808	Sempervivum Californicum. T. et Gr.	119 U.
809	“ montanum. L.	Collection.
810	“ arachnoideum. Bot. Mag.	“
811	“ tectorum. L.	119 U.
812	“ globiferum. D. C.	Collection.
813	“ glaucum. Ktze.	“
814	“ speciosum. Hort.	“
815	“ maximum. Hort.	“

5.—*Exotic and Tender Plants, cultivated under glass, on Central Park, near Mt. St. Vincent.*

A. ACOTYLEDONES.

FILICES—FERNS.

1. Acrostichum palmatum. Lk.
2. “ viscosum. Sw.
3. Adiantum Capillus Veneris. L.
4. “ concinnum. H. B. Kth.
5. “ cuneatum. Langsd. & F.
6. “ formosum. Willd.
7. “ Farleyense. Moore.
8. “ fulvum. Rav.
9. “ glanduliferum. Lk.
10. “ lunulatum. Burm.

A. ACOTYLEDONES.

Filices—Ferns.

11. Adiantum macrophyllum. Sw.
12. “ Moritzianum. Kth.
13. “ rubellum. Lk.
14. “ tenerum. Sw.
15. “ trapeziforme. L.
16. Allosurus rotundifolius. Kze.
17. Alsophila Australis. R. Br.
18. “ excelsa. R. Br.
19. Angiopteris ereeta. Hoffm.
20. “ macrophylla. Hort. Belg.
21. Angiopteris pruinosa. Kze.
22. Aneimia fraxinifolia. Nutt.
23. Anthyrium decurtatum. Presl.
24. Aspidium aculeatum. Sw.
25. “ atrovirens. Sm.
26. “ concinnum. Nutt.
27. “ falcatum. Kze.
28. “ reptans (radicans). Nutt.
29. “ serra. Sw.
30. “ Sieboldii. Van Houtte.
31. “ uliginosum. Kze.
32. Asplenium Brownii. Sm.
33. “ alatum. H. & Bonpl.
34. “ bulbiferum. Kze.
35. “ Belangerii. Kze.
36. “ Australasicum. Hort.
37. “ compressum. Sw.
38. “ dimorphum. Kze.
39. “ Fabianum. Het J.
40. “ flaccidum. Lk.
41. “ formosum. Willd.
42. “ asperum. Bergm.
43. “ heterodon. Blum.

A. ACOTYLEDONES.

FILICES—FERNS.

44. Asplenium heteropteron. Kze.
45. “ lunulatum. Sw.
46. “ Mexicanum. Hort.
47. “ marinum. L.
48. “ Nidus. L.
49. “ nigrocephalum. Kze.
50. “ polymorphum. Mast. et gall.
51. “ præmorsum. Sw.
52. “ strigillosum. Lowe.
53. “ umbrosum australe. Ait.
54. Balantium Antarcticum. Labill.
55. Blechnum australe. L.
56. “ Brasiliense. Desv.
57. “ Corcovadense. Radd.
58. “ fraxineum. Willd.
59. “ gracile. Klfs.
60. “ longifolium. H. B. Kth.
61. “ Pattersonii. Moore.
62. Ceratoptesis thalictroides. Brogn.
63. Campylonema decurrens. Presl.
64. Chrysodium flagelliforme. Mett.
65. Cyathea medullaris. Sw.
66. Cyrtomium falcatum. Presl.
67. Cheilanthes microphylla. Sw.
68. “ tomentosa. Lk.
69. Davallia canariensis. Sm.
70. “ pyxidata. Cav.
71. “ tenuifolia. Sw.
72. Dicksonia antarctica. Labill.
73. “ arborescens. Hort.
74. “ nitidula. Kze.
75. “ tenera. Pr.
76. Diplacium decussatum. Sw.

A. ACOTYLEDONES

FILICES—FERNS.

77. Doodia aspera. R. Br.
78. “ caudata. Hook.
79. Dryopteris palmata. Hook.
80. Didymochlæna limulata. Desv.
81. Eupodium Kaulfussi. I. Sm.
82. Gymnogramma chrysophylla Laucheana. C. Kooh.
83. “ Peruviana. Desv.
84. “ sulphurea. Desv.
85. “ tatarica. Desv.
86. Hymenodium crinitum. Tei.
87. Hypolepis Endlicherianum. Presl.
88. Lastræa patens. Presl.
89. “ varia. Kze.
90. Lonchites pubescens. Hort.
91. Lomaria ciliata. M.
92. “ gibba. Labill.
93. “ Pattersonii. Spreng.
94. Litobrachia alcyonis. Hook.
95. Lomaropsis Quatemalensis. Hort.
96. Marattia Laucheana. Hort Hams.
97. “ cicutæfolia. Kaulf.
98. Meniscium simplex. Hook.
99. Nephrolepis exaltata. Schott.
100. “ davallioides. Kze.
101. “ tuberosa. Hort.
102. Notochlæna nioca. Desv.
103. Oleandra ensifolia. Presl.
104. Onychium Japonicum. Kze.
105. Platycerum alcicorne. Desv.
106. Polypodium aureum. L.
107. “ appendiculatum. Hort.
108. “ costatum. Wall.
109. “ decurrens. Radd.

A. ACOTYLEDONES.

FILICES—FERNS.

110. Polypodium fraxinifolium. Jacq.
111. " tetragonum. Hort.
112. Polybotria neriifolia. Hort.
113. Pteris alata. Hort.
114. " argyræa. Th. Moore.
115. " cretica. L. Var. albo-lineata.
116. " geraniæfolia. Mett.
117. " hastata. Sw.
118. " Japonica. Mett.
119. " pedata. Kze.
120. " palmata. Willd.
121. " reflexa minor. Hort.
122. " sagittaefolia. Radd.
123. " serrulata. L.
124. " cristata. Hort.
125. " ensifolia. Hort.
126. Scolopendrium Krebris. Sw.
127. Todea superba. Col.
128. " australis. Hort.
129. " arborea. Willd.
130. Trichomanes radicans. Sw.
131. Woodwardia radicans. S.
132. Selaginella Africana. A. Br.
133. " cæsia Hort.
134. " aurea. Hort.
135. " affinis. A. Br.
136. " arborea (cæsia arborea). Hort.
137. " Brasiliensis. Radd.
138. " Cunninghami. Hort.
139. " cuspidata. Lk.
140. " crispa. Hort. Lodd.
141. " erytropus. Mart.
142. " flabellata. L.

A. ACOTYLEDONES.

FILICES—FERNS.

143. Selaginella denticulata. L.
144. " lepidophylla. Hook.
145. " Martensii. Spring.
146. " paradoxa. Hort.
147. " Poulterii. M.
148. " rubricaulis. Moore.
149. " Schottii. Hort.
150. " serpens. Spr.
151. " veriegata. Spr.
152. " Willdenowii. Hort.

B. MONOCOTYLEDONES.

GRAMINEÆ.

153. Andropogon formosum. Hort.
154. Panicum plicatum. Lam.
155. " palmaefolium. Poir.
156. Panicum sulcatum. Aubas.
157. " variegatum (plicatum). Hort. Veitch.

BAMBUSEÆ.

158. Bambusa arundinasea. Retz.
159. " Japonica fol. var. Sieb.
160. " nigra. Hort.
161. Arundinasia falcata. Nees ab Esenb.
162. " glaucescens. P. de B.

CYPERACEÆ.

163. Cyperus alternifolius. L.
164. " Papyrus. L.
165. Isolepis pygmæa. Kth.

DIOSCOREACEÆ.

166. Dioscorea discolor. Hamilt.
167. Dioscorea metallica. Hort. Belg.

B. MONOCOTYLEDONES.

Smilaceæ.

168. Medeola asparagoides (Myriophyllum). Willd.
169. Lapageria rosea. Ruiz et Pav.

Hæmodoraceæ.

170. Barbacenia purpurea. Lindl.
171. Barbacenia Rogieri. Hort. Belg.

Liliaceæ.

172. Lilium cordifolium. Thumb.
173. Lilium giganteum. Wall.
174. Gloriosa Plantis. Hort.
175. Fittonia modesta. Hook.
176. Ornithogalum aureum. Willd.
177. " arabicum. L.

Commelineæ.

178. Commelina coclestris. Kth.
179. Tradescantia zebrina. L.
180. " discolor. Sm.
181. " " vittato. Miqu.
182. " viridis. Hort.
183. Dichorisandra undulata. Lindl.
184. " ovata. Mart.
185. " cuprea. Hort.

Hemerocallideæ.

186. Yucca aloëfolia. L.
187. " " fol. var. Hort.
188. " albo-spice. Hort.
189. " gloriosa. L.
190. " draconis. L.
191. " quadricolor. Hort.
192. Veltheimia viridiflora. L.
193. Eucomis punctota. Herit.
194. Lachenalia luteola. Jacq.

B. MONOCOTYLEDONES.

HEMEROCALLIDEÆ.

195. Lachenalia pendula. Tratt.
196. " tricolor. Jacq.
197. Agapanthus umbellatus. Herit.
198. " minor. fol. var. Hort.
199. Scilla natalensis. Planch.
200. " maritima. L.

AMARYLLIDEÆ.

201. Amaryllis aulica. Herb.
202. " Bella-donna. L.
203. " pardina. Hook.
204. " tigrina. V. Houtte.
205. " Regina. Hort.
206. " reticulata. L'Herit,
207. " solandræflora. Lindl.
208. " Tettani Topf. (robusta Sw.)
209. " vittata. Hort.
210. Brunsvigia curvifolia. Ait.
211. " falcata. Ait.
212. " Sosephinæ. Ker.
213. " multiflora. Eckl.
214. Collanea urceolata. Schult.
215. Clivia nobilis. Lindl.
216. Imatophyllum miniatum. Hook.
217. " cyrtanthæflorum. Lindl.
218. Coburgia incarnata. Herb.
219. Pancratium calathinum. Herb.
220. " caribæum. Herb.
221. " littorale. Herb.
222. " illiricum. L.
223. " maritimum. L.
224. " speriorum. Hort.
225. Ismene nutaus. Herb.

B. MONOCOTYLEDONES.

AMARYLLIDEÆ.

226. Crinum asiaticum. Herb. (zeylanicum.)
227. " amabile. Herb. (Don.)
228. " capense. Herb. (Am. longifolia.)
229. " giganteum. Andr. (Amaryllis.)
230. " ornatum. Herb.
231. Hymenocallis adnata princeps. Hort.
232. Eucharis amazonica. Lindl.
233. " candida. Pl. et Lind.
234. " grandiflora. Planch.
235. Hæmanthus albiflos. Eckl.
236. " coccineus. L.
237. " multiflorus. Willd.
238. " puniceus. L.
239. tigrinus. Eckl.
240. Lycoris aurea. Herb.
241. " radiata. Herb.
242. Spreckelia formosissima. Heist.
243. Furcroya gigantea. Lucc.
244. Pincenectitia glauca. (Baucairnea.) Hort.
245. " tuberculata. Hort. (Bauc. recurvata Ch. Lem.)
246. Littæa gemminiflora. (Bonapartea.) R. et Pav.
247. Agave Americana. L.
248. " filifera. Salm. Dyck.
249. " Mexicana. Lam.
250. " Salmiana. Karw.
251. Doryanthes excelsa. R. Br.
252. Nerine coranica. Herb.
253. " Sarniensis. L.
254. " undulata. Herb.
255. Vallota purpurea. Herb.
256. Griffinia hyacinthina. Ker.
257. " Blumenavia. Hort. V. Houtte.
258. Zephyranthus Atamasco. Herb.

B. MONOCOTYLEDONES.

AMARYLLIDEÆ.

259. Zephyranthus candida. Herb.
260. " grandiflora. Lindl.
261. " ochroleuca. Herb.
262. " rosea. Herb.
263. Alstroemeria aurantiaca. Don.
264. " Brasiliensis. Hort.
265. " peregrina. Hort.
266. " peruviana. Hort.
267. " psittacina. Lehm.
268. " tricolor. Hook.

ASPHODELEÆ.

269. Bulbine aloides. Haw.
270. Aloë arborescens. L.
271. " caesia. S. Dyck.
272. " cuspidata. S. Dyck.
273. " ciliaris. S. Dyck.
274. " fasciata. S. Dyck.
275. " mitraeformis. S. Dyck.
276. " nitida. S. Dyck.
277. " parva. S. Dyck.
278. " picta. S. Dyck.
279. " planifolia. Bak.
280. " retusa. L.
281. " serrulata. Salm. Dyck.
282. " tenuior. Salm. Dyck.
283. " verrucosa. Salm. Dyck.
284. " variegata. D. C.
285. Gasteria maculata. Haw.
286. " nigricans. Haw.
287. " lingua. Haw.
288. " albo-punctata. Haw.
289. " umbellata. D. C.

EXOTIC AND TENDER PLANTS—*(Continued)*.

B. MONOCOTYLEDONES.

ASPHODELEÆ.

290. Gasteria margaritifera minor. Hort.
291. “ carinata. Salm. Dyck.
292. Apicra spiralis. D. C.
293. Aletris farinosa. L.
294. Reineckia carnea C. Koth.
295. Phaedranassa chloracea. Herb.
296. “ fuchsioides. Herb.
297. Chlorophyton Sternbergianum. Steud.
298. Xanthorrhoæ Australis. R. Br.
299. Dracæna arborea. Lk.
300. “ Boerhavii (Rumphii). L.
301. “ Draco. L.
302. “ cernua. Hort. Berol.
303. “ elliptica. Lk. (nigra).
304. “ fragrans. Nob.
305. “ frutescens (Aletris). Hort. Berol.
306. “ mauritiana. Willd.
307. “ tesselata. Willd.
308. “ umbraculifera. Jacq.
309. “ (Cordyline) australis. Hook.
310. “ “ cannaefolia. Sweet.
311. “ “ congesta. Hort.
312. “ “ Escholtziana (brasiliensis). Mart.
313. “ “ ensifolia. Nob.
314. “ “ Haageana. Hort.
315. “ “ latifolia. Hort.
316. “ “ indivisa. Nob.
317. “ “ rubra. Hort. Berol.
318. “ “ spectabilis. Kth. and Bousché.
319. “ “ stricta. Hort. Berol.
320. “ “ Veitchii. Hort.
321. “ (Calodracon) Cooperi. Hort.
322. “ “ Guilfoylii. Hort. Veitch.

B. MONOCOTYLEDONES.

Asphodeleæ.

323. Dracæna (Calodracon) nobilis. Van Houtte.
324. “ “ nigrescus. Hort. Veitch.
325. “ “ Reginae. Hort. Veitch.
326. “ “ terminalis. Jacq.
327. “ “ ferrea. Jacq.
328. Phormium tenax. Forst.
329. “ Cookii. R. Br.
330. Dianella cœrulea. R. Br.
331. “ latifolia. R. Br.
332. Curculigo recurvata. Dryandr.
333. Arthropodium fimbriatum. Otto and Dietr.

Irideæ.

334. Moræa pavonia. Hort.
335. “ collina. Hort.
336. “ persica. L.
337. Gladiolus ramosus. Hort.
338. “ floribumdus. Hort.
339. “ gandavensis. Van Houtte.
340. Watsonia iridifolia. Ker.
341. Anomatheca cruenta. Hort. Kew.
342. Antholiza Æthiopica. L. Ell.
343. Aristea capitata. Herb.
344. Babiana lilacina. D. C.
345. “ sulphurea. D. C.
346. Brodiaea congesta.
347. Crocosmia aurea. Planch.
348. Cypella Herbertii. Hook.
349. Ferraria tigrida. L.
350. “ speciosa (undulata). Hort.
351. Phalocallis plumbea. W. Herb.
352. Ixia candida. Eckl.
353. “ dubia. Eckl.

B. MONOCOTYLEDONES.

IRIDEÆ.

354. Ixia coccinea. Eckl.
355. “ hybrida. Hort.
356. “ crocata. Ait.
357. “ viridiflora. Eckl.
358. Sparaxis tricolor. Ait.
359. “ hybrida. Hort.
360. Millia biflora (Tritelleya). Cav.
361. “ uniflora “ Grah.
362. Rigidella coccinea. Herb.
363. Schizostylis coccinea. Backh. and Harw.

BROMELIACEÆ.

364. Æchmæa discolor. Hook.
365. “ fulgens (miniata). A. Brogn.
366. Ananassa sativa. Fol. var. Hort.
367. Billbergia amœna. Lindl.
368. “ cœlestis. De Jonghe.
369. “ fasciata. Lindl.
370. “ farinosa. Otto and Dietr.
371. “ Liboniana. De Jonghe.
372. “ pyramidalis. L.
373. “ zebrina. Otto et Dietr.
374. Cryptanthus acaulis. Hort.
375. Dasylirion longifolium (junceum). Hort.
376. “ serratum. Salm. Dyck.
377. Encholirion Jonghii. Hort. Belg.
378. Guzmannia picta. Fl. Van Houtte.
379. “ tricolor. Ruiz et Pav.
380. Hechtia ghiesbrechtii. Hort. Par.
381. Nidularium fulgens. Mett.
382. “ spectabile. Mett.
383. Pholidophyllum zonatum (Tillandsia). L.
384. Pitcairnia punicea. Lindl.

B. MONOCOTYLEDONES.

BROMELIACEÆ.

385. Pitcairnia recurvata. Lindl.
386. “ sulphurea. Andr.
387. “ undulata. Scheidw.
388. Puja Altensteimi. Lk.
389. “ Chilensis. Molina.
390. “ maidifolia. Dsne.
391. Tillandsia bulbosa (tuberculata). Hook.
392. “ serrulata. Hort.
393. “ splendens. A. Brogn.
394. “ usneoides. L.
395. Dyckia remotiflora. Otta and Dietr.

SCITAMINEÆ ET MUSACEÆ.

396. Alpinia (Renealmia) nutans. Roxb.
397. “ “ “ fol. var. Hort.
398. Canna aurantiaca. Bché.
399. “ annei. Hort.
400. “ Bihorelli. Haber.
401. “ coccinea. Bché.
402. “ Caledoniensis. Hort.
403. “ discolor. L.
404. “ “ floribunda. Haber.
405. “ gigantea. Hort.
406. “ Guatemalensis. Hort.
407. “ indica. L. fol. var.
408. “ hybrida tricolor. Hort.
409. “ flaccida. Lk.
410. “ lagunensis. Lk. and Bouché.
411. “ limbata. Rosc.
412. “ lutescens. Bché.
413. “ musæfolia. Hort.
414. “ nigricans. Hort.
415. “ spertabilis. Hort.
416. “ Warscewitzii. Bouché.

B. MONOCOTYLEDONES.

Scitamineæ et Musaceæ.

417. Canna Van Houttei (hybrida). Hort.
418. Costus discolor. Wendl.
419. " Malortieanus. Wendl.
420. " speciosus. Wendl.
421. Curcuma amada. Roxb.
422. " Rosciana. Wall.
423. " cordata. Wall.
424. " Leodaris. Wall.
425. Globba erecta. Hort. Berol.
426. " Saltatoria. Hort. Van H.
427. Phrynium cylindricum. Horsf.
428. " setosum. Hort. Berol.
429. Hedychium angustifolium. Wall.
430. " Gardenerianum. Wall.
431. Kæmpferia angustifolia. Rosc.
432. " rotunda. L.
433 Marantha argyræa. Hort.
434. " arundinacea. L.
435. " bicolor. Hort.
436. " eximia. Math.
437. " fasciata. Lk. and O.
438. " illustris. Lind.
439. " Lindenii. Hook.
440. " micans. Hort. Belg.
441. " Pardina. Planch et Lind.
442. " Porteana. Lind.
443. " regalis. Hort.
444. " rosea-picta. Lind.
445. " truncata. Kth. and B.
446. " vittata. Lind.
447. " Veitchiana. Hook.
448. " Warscewitzii. L. Math.
449. " zebrina. L.

B. MONOCOTYLEDONES.

SCITAMINEÆ ET MUSACEÆ.

450. Calathea (Marantha) flavescens. Lk. and O.
451. Stromanthe (Marantha) sanguinea. Sond.
452. Thalia dealbata. Willd.
453. Heliconia angustifolia. Hook.
454. " Bihai. Sw.
455. " Brasiliensis. Mart.
456. " discolor. Hort.
457. " (farinosa) pulverulenta. Lindl.
458. Urania amazonica. Hort.
459. Ravenalia Madagascariensis. Adans.
460. Strelitzia Reginæ. Banks.
461. " " pumila. Hort.
462. " " spatulata. Hort.
463. " Augusta (alba). Thunb.
464. Musa Cavendishii (sinensis). Paxt.
465. " coccinea. Roxb.
466. " Dacca. Hort.
467. " discolor. Hort.
468. " paradisiaca. L.
469. " rosacea. Jacq.
470. " zebrina. Van Houtte.

AROIDEÆ.

471. Acorus graminifolius fol. var. Hort.
472. Orontium Japonicum fol. var. Hort.
473. Aspidistra lurida fol. var. (Plectogyne). Hort.
474. " lurida macrophylla. Hort.
475. Alocasia alba. Schott.
476. " arborea (odorata). Schott.
477. " cucullata (arborea). Schott.
478. " gigantea. Schott.
479. " Jenningii. Hort. Veitch.
480. " Lowii. Hort.

B. MONOCOTYLEDONES.

Aroideæ.

481. Alocasia macrorrhiza, fol. var. Hort.
482. “ marginata. C. Koch.
483. “ odora. C. Koch.
484. “ metallica. Hook.
485. “ Veitchii. Lindl.
486. “ zebrina. Schott.
487. Colocasia antiquorum. Schott
488. “ coerulescens. Hort.
489. “ euchlora C. Koch. and Sellow.
490. “ esculenta. Vent.
491. “ Javanica. Hort.
492. Caladium argyrites Ch. Lem.
493. “ Belleimii. Hort. Chaut.
494. “ Baraquinis. Chaut.
495. “ Brogniartii. Ch. Lem.
496. “ bicolor. Vent.
497. “ Chantiris. Ch. Lem.
498. “ discolor. Vent.
499. “ hastatum. Ch. Lem.
500. “ Neumanni. Ch. Lem.
501. “ pictum. Vent.
502. “ Poecile. Schott.
503. “ cupreum. Chaut.
504. “ Houllettii. Ch. Lem.
505. “ porphyrophyllum. C. Koch.
506. Arisaema atrorubens. Blume.
507. “ praecox. Schott.
508. “ ringens. Blume.
509. “ Sieboldii. Schott.
510. Amorphophallus campanulatus. Bl.
511. “ zebrinus. Hort.
512. “ bulbiferus. Mi .
513. “ Rivieri. Hort. Par.

B. MONOCOTYLEDONES.

AROIDEÆ.

514. Sauromatum guttatum. Schott.
515. Dieffenbachia Seguine picta. Schott.
516. Richardia aethiopica (Calla). Schott.
517. " sinensis (pumila). Hort.
518. " albo-maculata. Hook.
519. Xanthosoma appendiculatum. Schott.
520. " atrovirens. C. Koch. and Bouché.
521. " Mafaffa. C. Koch.
522. " pilosum. C. Koch.
523. " sagittaefolium. C. Koch.
524. " violaceum. Schott.
525. Anthurium Augustinianum. C. Koch.
526. " bellum. Hort. Belg.
527. " calophyllum. Hort.
528. " crassipes. Schott.
529. " Galeottii. Hort.
530. " Laucheanum. C. Koch.
531. " leuconeurum. Ch. Lem.
532. " macrophyllum. Schott.
533. " magnificum. Lind.
534. " Moritzianum. Kltsch.
535. " peltatum. Schott.
536. " pedatum. Schott.
537. " imperiale. Miq.
538. " regale. Lind.
539. " Scherzerianum. Schott.
540. " variabile. Hort.
541. Pothos argyræa. Schott.
542. " lucida. Hort.
543. " hastata. Hort.
544. " pentaphylla. Hort.
545. Philodendron albo-vaginatum. C. Koch.
546. " auritum. Hort.

B. MONOCOTYLEDONES.

AROIDEÆ.

547. Philodendron bipinnatifidum. Schott.

548. “ cardiophyllum. C. Koch.

549. “ crassinervum. C. Koch.

550. “ Lindenii. Hort. Belg.

551. “ panduraeforme. Schott.

552. “ pertusum. Kltsch.

553. “ pinnatifidum (giganteum). Hort. Belg.

554. “ sanguisneum. C. Koch.

555. “ Sellowianum. C. Koch.

PALMÆ.

556. Areca aurea. Hort. Belg.

557. “ Catechu. Willd.

558. “ rubra. Borg.

559. “ sapida. Soland.

560. Astrocaryum mexicanum. Hort. Lind.

561. Caryota sobolifera. Wall.

562. Cocos plumosa. Hort. Kew.

563. “ nucifera. L.

564. Acrocomia aculeata. Lodd.

565. Corypha Australis. R. Br.

566. Livistonia sinensis (Latania). Mart.

567. Phœnix dactylifera. L.

568. “ Leonensis. Hort. Par.

569. “ pumila. Hort. Par.

570. “ sylvestris. Roxb.

571. Rhapis flabelliformis. Ait.

572. Pritchardia Martiana (pacifica). Hort. Belg.

573. Trinax elegans. Wendl.

574. Chamædorca Areenbergii. H. Wendl.

575. “ desmoncoides. H. Wendl.

576. “ Ernesti Augusti. H. Wendl.

577. “ geonomaeformis.

B. MONOCOTYLEDONES.

PALMÆ.

578. Chamædorea lunata. Lich.
579. " Martiana. H. Wendl.
580. " Schiedeana. Lk. and Otto.
581. " Wendlandii. Lind.
582. Seafortia elegans. R. Br.
583. Chamaerops stauracantha. Hort.
584. " humilis. L.
585. " excelsa. Thunb.
586. " tomentosa. Morr.
587. Plectocomia elongata. Blume.

PANDANEÆ.

588. Pandanus utilis. Borg.
589. " graminifolius. Willd.
590. " javanicus. Hort. Belg.
591. " laevis. Blume.

CYCADEÆ.

592. Cycas revoluta. L.
593. " circinalis. Thunb.
594. Ceratozamia mexicana. Miq.
595. Zamia muricata. Miq.
596. " horrida. Lehm.

C. DICOTYLEDONES.

CONIFERÆ.

597. Torreya grandis. T. et Gr.
598. " myristica. Hook.
599. Podocarpus coriacea. Rich.
600. " elongata. Herit.
601. " lanceolata. Steud.
602. " latifolia. R. Br.
603. " neriifolia. Don.
604. " Maki. Sieb.

C. DICOTYLEDONES.

CONIFERÆ.

605. Podocarpus Pardina. Hook.
606. “ variegata. Hort. Lodd.
607. Dacridium cupressinum. Lamb.
608. “ excelsium. Wall.
609. “ Franklini. Hook.
610. Phyllocladus asplenifolia. Hook.
611. Saxe-Gothæa conspicua. Lindl.
612. Juniperus Bermudiana. Lindl.
613. “ dealbata. Lond.
614. “ drupacea. Labill.
615. “ Lycea. L.
616. “ squamata (minor). Don.
617. Widdringtonia junisperoides. Endl.
618. Cupressus thurifera. Hort.
619. “ goveniana. Lindl.
620. “ sempervirens. Lindl.
621. “ torulosa. Lamb.
622. Retinospora glauca. Hort.
623. “ spæroides. Spach.
624. Biota Nepalensis. Hort.
625. Thujopsis dolobrata, fol. var. Sieb.
626. Fitz-Roya patagonica. Hook.
627. Libocedrus Chilensis. Endl.
628. “ Doniana. Endl.
629. Frenclia Australis. Mirb.
630. “ pyramidalis. Hort.
631. Cryptomeria araucaroides. Hort.
632. Sequoja sempervirens. Endl.
633. Cedrus Deodora. Lond.
634. Pinus maritima. Lamb.
635. “ Pinea. L.
636. “ Australis. Michx.
637. “ insignis. Dougl.

C. DICOTYLEDONES.

CONIFERÆ.

638. Pinus Sabiniana. Dougl.
639. " Montezumæ. Lamb.
640. " parviflora. Sieb.
641. Cunninghamia glauca. R. Br.
642. Dammara orientalis (alba). Lamb.
643. Araucaria brasiliensis. Rich.
644. " Bidwillii. Hook.
645. " excelsa. Lamb.
646. " Cookii. Hook.
647. " imbricata. Ruiz et Pav.
648. Sciadopitys verticillata. Sieb. et Lucc.

CASUARINEÆ.

649. Casuarina equisetifolia. R. Br.
650. " Lehmanniana. Miq.
651. " Hügeliana. Miq.
652. " quadrivalvis. R. Br.
653. " Fraseriana. Miq.
654. " robusta. Miq.
655. " stricta. Hugel.
656. " torrulosa. Ait.

PIPERACEÆ.

657. Piper nigrum. L.
658. Piperomia rubella. Lk.
659. " maculosa. Lind.
660. " Verschaffeltii. Lind.
661. " argyrophylla. Lind.
662. " peltata. Lind.

CUPULIFERÆ.

663. Quercus virens. L.
664. " suberosa. L.
665. " Ilex. L.
666. " acuminata. Steud.

C. DICOTYLEDONES.

CUPULIFERÆ.

667. Quercus rugosa. Thunb.
668. " lanuginosa. D. Prod.
669. " lancifolia. Thunb.
670. " insignis. Dew.

URTICEÆ.

671. Bœhmeria argentea. Lind.
672. Urtica macrophylla. Vent.
673. Gunnera scabra. Ruiz et Pav.
674. Pilea muscosa. Lindl.
675. " serpillifolia. Hort.
676. Ficus Bengalensis. L.
677. " elastica. Roxb.
678. " Chauvieri. Hort. Belg.
679. " dealbata. Hort. Belg.
680. " Cooperii. Hook.
681. " rhododendrifolia. Lk.
682. " religiosa. L.
683. " stipularis. Thunb.
684. " minima. Hort.
685. " lucida. Hort.
686. " Carica. L.
687. " macrophylla. Kth.
688. " Porteana. Hort. Belg.
689. " Suringarii. Hort. Belg.
690. Artocarpus incisa. L. fil.

EUPHORBIACEÆ.

691. Euphorbia fulgens. Karw.
692. " jacquiniflora. Hort.
693. " pulcherrima (Poinsettia). Hort.
694. " Caput-Medusæ. D. C.
695. " canariensis. Haw.
696. " cereiformis. Haw.
697. " arborescens. Haw.

C. DICOTYLEDONES.

Euphorbiaceæ.

698. Croton variegatum (Codiæum). Mull.
699. “ pictum. Hort.
700. “ Cascarilla. Adans.
701. “ longifolium. Hort.
702. Phyllanthus angustifolius. Lk.
703. “ latifolius (arbuscula). Lk.
704. Acalypha tricolor (colorata). Lind.
705. Dalechampia Rœzlia-rosea. Muell.
706. Jatropha multifida. Mart.
707. “ panduræformis. Mart.

Begoniaceæ.

708. Begonia argyrostigma. Lk.
709. “ Boliviensis. D. C.
710. “ Dregei (microphylla). Willd.
711. “ diversifolia. Grah.
712. “ fuchsioides. Hook.
713. “ glauca pendula (scandens). Sw.
714. “ coccinea. Hook.
715. “ heracbeifolia. Kltsoh.
716. “ hydrocotylefolia.
717. “ incarnata. Otto et Dietr.
718. “ manicata. Kth.
719. “ miniata. Planch et Lind.
720. “ odorata. Willd.
721. “ peltata. Willd.
722. “ pedata. Kth.
723. “ prestoniensis. Moore.
724. “ ricinifolia. Ktsoh.
725. “ sanguinea. Kth.
726. “ Rex. Ptz.
727. “ smaragdina. Hort.
728. “ Sedenii. Hort. Angl.
729. “ semperflorens. Otto.

C. DICOTYLEDONES.

BEGONIACEÆ.

730. Begonia Warscewitzii. Hort. Berol.

731. “ Weltoniensis. Hort. Angl.

732. “ Xanthina. Hook.

PASSIFLOREÆ.

733. Passiflora actinea. Hook.

734. “ alba. Lk. et Otto.

735. “ coerulea. L.

736. “ quadrangularis. L.

737. “ acerifolia. Cham.

738. “ tinifolia. Juss.

739. “ insignis. Hort.

740. “ kermesina. Mart.

741. “ Fordii. Hort.

742. “ edulis. L.

743. “ suberosa. L.

744. “ racemosa. Hort.

745. “ trifasciata. Lind.

746. Tacsonia splendens. Lindl.

747. “ mollissima. H. B. et Kth.

748. “ Van Vaulxenni. Lindl.

749. Disemma Herbertii. D. C.

CRASSULACEÆ.

750. Crassula lactea. D. C.

751. “ coccinea (Kalosanthes). D. C.

752. “ spatulata. D. C.

753. Diostemon Hookeri. Haw.

754. Pachyphytum bracteosum. Haw.

755. Rochea falcata. D. C.

756. “ perfoliata. D. C.

757. Umbilicus horizontalis. D. C.

758. “ chrysanthus. Boiss.

759. Bryophyllum crenatum. D. C.

C. DICOTYLEDONES.

Crassulaceæ.

760. Bryophyllum calycinum. D. C.
761. Cotyledon orbiculatum. Haw.
762. “ arboreum. Haw.
763. “ rhombeum. Haw.
764. Echeveria glauca. Lindl.
765. “ Fischeri. D. C.
766. “ secunda. Hort.
767. “ metallica. Lindl.
768. “ gibbiflora. D. C.
769. “ grandiflora. Haw.
770. “ retusa. Haw.
771. “ sanguinea. Haw.
772. “ Ehrenbergii. D. C.
773. Sedum carneum, fol. var. Hort.
774. Sempervivum laxum. Harv.
775. Aichrysum cordifolium. Webb.
776. Aeonium (Semperoivum) arboreum. L.
777. “ “ “ fol. var. Hort.
778. “ “ “ nigram. Hort
779. “ “ balsamiferum. W. et B.
780. “ “ barbatum. W. et B.
781. “ “ Webbianum. Haw.
782. “ “ canariense. W. et B.
783. “ “ chrysanthum. W. et B.
784. “ “ Youngianum. Haw.
785. “ “ tabulaeforme. Haw.
786. “ “ urbicum. W. et B.
787. Grenovia aurea. Webb.
788. “ fallax. Webb.
789. “ polypharmica. Webb.

Malvaceæ.

790. Hybiscus rosa sinensis. L. fl. pleno.

C. DICOTYLEDONES.

MALVACEÆ.

791. Hybiscus rosa sinensis splendens. Hort.
792. “ ferox. Hook.
793. Sida Japonica. Thunb.
794. Abutilon striatum. L.
795. “ venosum. Ch. Lem.
796. “ Thompsonii. Hort.
797. “ insignis. Planch.
798. “ mesapotamicum. A. S. H.
799. Cheirostemon platanoides. R. et P.
800. Sterculea platanifolia. L.

BUETTNERIACEÆ.

801. Thomasia quercifolia. Huegel.
802. “ purpurea. Gay.
803. Rulingia corylifolia. Grab.
804. “ parvifolia. Endl.
805. Hermannia flammea. Ait.
806. “ plicata. Ait.
807. Mahernia odorata. Cav.
808. Dombeya racemosa. D. C.
809. Astrapæa Wallichii. L.

TROPAEOLEÆ.

810. Tropaeolum brachyceras. Hook.
811. “ Lobbianum. Hook.
812. “ majus flore pleno. Hort.
813. “ pentaphyllum. Sweet.
814. “ polyphyllum. Sweet.
815. “ speciosum. Endl. and Poep.
816. “ tricolorum. Swt
817. “ tuberosum. R. et Pav.

TILIACEÆ.

818. Entelia arborescens. Lindl.
819. Sparmannia africana. L.

C. DICOTYLEDONES.

ERICEÆ.

820. Erica mediterranea. L.
821. " persoluta. Reg.
822. " Mac-Nabiana. Hort. Angl.
823. " ampullacea. Hort.
824. " hyemalis. Hort.
825. " gracilis. Otto and Dietr.
826. " colorans. Sm.
827. " ventricosa. Sm.
828. " Cavendishii. Hort.
829. " Wilmoreana. Hort.
830. " arborea. L.
831. Epacris miniata. Hort.
832. " nivalis varietas. Hort.

RHODORACEÆ.

833. Azalea indica. L.
834. " amœna. Lindl.
835. " obtusa. Lindl.
836. " hybrida. Hort.
837. " phœnicea. Hort.
838. Rhododendron arboreum. Smith.
839. " campanulatum. Hook.
840. " hybridum. Hort.
841. Clethra arborea. Ait.

AURANTIACEÆ.

842. Citrus Aurantium. L.
843. " " myrtifolium. Hort.
844. " " crispum. Hort.
845. " " satrufolium. Hort.
846. " " fol. var. Hort.
847. " Limonium. L.
848. " Sinensis. Hort.
849. " Japonicus. Thunb.

C. DICOTYLEDONES.

Aurantiaceæ.

850. Triphasia aurantiaca. Lour.
851. Murraya exotica. L.

Polygaleæ.

852. Polygala Dalmaisiana. Hook.
853. " grandis. Hort.
854. " myrtifolia. Huegel.
855. " speciosa. Sims.

Sapindaceæ.

856. Stadtmannia Australis. Lam.
857. " Jonghii. Lind.

Malplgiaceæ.

858. Malpigia rosea. Hort.

Ternstrœmiaceæ.

859. Eurya latifolia. R. Br.
860. Stuartia pentagyna. W.
861. Cleyera Japonica. Thunb.
862. Camellia Japonica. L.
863. " sasangua. Thunb.
864. Thea viridis. L.
865. " Bohea. L.

Magnoliaceæ.

866. Illicium anisatum. L.
867. " floridanum. L.
868. " religiosum. W.
869. Magnolia fascata. D. C.
870. " grandiflora. L.
871. Tassmannia aromatica. R. Br.

Pittosporineæ.

872. Pittosporum undulatum. Vent.
873. " Tobira. Ait.
874. " " fol. var. Hort.

C. DICOTYLEDONES.

PITTOSPORINEÆ.

875. Sollya heterophylla. Lindl.
876. Bursaria spinosa. Cav.

RUTACEÆ.

877. Metrodorea atropurpurea. Fisch.
878. Ziera macrophylla. R. Br.
879. Boronia serrulata. Lindl.
880. “ viminea. Lindl.
881. Eriostemon buxifolium. Sm.
882. “ latifolium. Huegel.
883. “ intermedium. Hook.
884. “ scabrum. Huegel.
885. Crowea saligna. R. Br.
886. Correa cardinalis. Muell.
887. “ Cavendishii. Hook.
888. “ speciosa. R. Br.
889. “ splendens. Hort.
890. Diosma ambigua. R. Br.
891. “ obtusa. R. Br.
892. “ rubra. Berg.
893. Coleonema album. Bart. and W.

ZYGOPHYLLEÆ.

894. Melianthus major. L.

LINACEÆ.

895. Linum flavum. L.
896. “ monogynum. Forst.
897. “ trigynum. Eckl. and Zeih.

OXALIDEÆ.

898. Oxalis Bowei. L.
899. “ esculenta. Hort.
900. “ Deppei. Kth.
901. “ Lasyandra. Lk. and O.
902. “ floribunda. Hort.

C. DICOTYLEDONES.

OXALIDEÆ.

903. Oxalis rosea. Jacq
904. " tetraphylla. Kth.
905. " versicolor. Planch.

GERANIACEÆ.

906. Geranium Thunbergianum. Hort.
907. Pelargonium dissectum. Bach.
908. " graveolens.
909. " hybridum var. Hort.
910. " inquinans. Ait.
911. " malvæfolium. Jacq.
912. " cucullatum. L.
913. " odoratissimum. Ait.
914. " peltatum. Zeih. and Eckl.
915. " grossularoides. Ait.
916. " quercifolium. Ait.
917. " roseum var. Hort.
918. " tomentosum. Jacq.
919. " vitifolium. Ait.
920. " zonale. L.

MESEMBRYACEÆ.

921. Mesembryanthemum aureum. Salm. D.
922. " acinaciforme. Haw.
923. " abyssinicum. Rgl.
924. " blandum. Salm. Dyck.
925. " coccineum. Haw.
926. " caulescens. Mill.
927. " cultriforme. S. Dyck.
928. " cordifolium. L
929. " curvifolium. S. Dyck.
930. " deltoides. Mill.
931. " depressum. S. D.
932. " dolabriforme. S. D.

C. DICOTYLEDONES.

MESEMBRYACEÆ.

933. Mesembryanthemum difforme. S. D.
934. “ echinatum. L.
935. “ Ecklonii. Kzé.
936. “ falciforme. S. D.
937. “ incurvum. Haw.
938. “ inclandens. Haw.
939. “ lacerum. Haw.
940. “ Lehmanni. S. D.
941. “ linguæforme. Haw.
942. “ multiceps. Haw.
943. “ muscalinum. Haw.
944. “ mutabile. S. Dyck.
945. “ polyphyllum. Hort.
946. “ pugioforme. S. D.
947. “ rigidum. Haw.
948. “ roseum. Hort.
949. “ rubricaule. Hort.
950. “ Salmii. Haw.
951. “ polyanthon. Haw.
952. “ Spectabile. Haw.
953. “ tigrinum. Haw.
954. “ violaceum. D. C.
955. “ Zeiheri. Lk.

THYMELEÆ.

956. Daphne Aucklandii. Hook.
957. “ collina. D. C.
958. “ indica. L.
959. “ odorata rubra. Hort.
960. Edgeworthia chrysanta. D. C.
961. Pimelia decussata. R. Br.
962. “ ligustrina. Labill.
963. Gnidia pinifolia. R. Br.

C. DICOTYLEDONES.

Proteaceæ.

964. Protea corymbosa. R. Br.
965. Leucadendron argenteum. R. Br.
966. “ plumosum. R. Br.
967. Lomatia longifolia. R. Br.
968. “ silaifolia. R. Br.
969. “ Bidwillii. R. Br.
970. Hakea saligna. R. Br.
971. “ acicularis. R. Br.
972. “ gibbosa. R. Br.
973. “ pectinata. Rob. Br.
974. Grevillea Thelemani. Hort.
975. “ sulphurea. Cunningh.
976. “ rosmarinifolia. D. C.
977. Dryandra floribunda. R. Br.
978. Banksia ericaefolia. R. Br.
979. “ speciosa. R. Br.
980. Stenocarpus Cunninghami. Huegel.
981. Rhopala Corcovadensis. Hort.
982. “ elegans. Hort. Angl.
983. “ Jonghii. Hort. Belg.

Laurineæ.

984. Laurus foetens. L.
985. “ nobilis. L.
986. “ regalis. W.

Papilionaceæ et Mimoseæ.

987. Acacia alata. R. Br.
988. “ armata. R. Br.
989. “ calamifolia. Lindl.
990. “ cultriformis. Hook.
991. “ cyanophylla. Lindl.
992. “ dealbata. Lk.
993. “ dodoneæfolia. Desv.

C. DICOTYLEDONES.

PAPILIONACEÆ ET MIMOSEÆ.

994. Acacia Douglasii. Hort.
995. “ floribunda. Hort.
996. “ glaucescens. Meissn.
997. “ Huegeli. Benth.
998. “ horrida. Willd.
999. “ graveolens. A. Cunningh.
1000. “ ixiophylla. Seem.
1001. “ juniperina. W.
1002. “ leiophylla. Benth.
1003. “ leptophylla. Meissn.
1004. “ longissima. Hort.
1005. “ longifolia. D. C.
1006. “ Lophanta. L.
1007. “ lineata. Lk.
1008. “ linifolia. Hort.
1009. “ lanigera. Cunningh.
1010. “ Meissneri. Lehm.
1011. “ myrtifolia. R. Br.
1012. “ melanoxylon. R. Br.
1013. “ mollissima. Seem.
1014. “ mucronata. Hort.
1015. “ oxycedrus. Sbr.
1016. “ prostrata. Meissn.
1017. “ pulchella. R. Br.
1018. “ ruscifolia. Cunningh.
1019. “ stricta. W.
1020. “ Sophora. R. Br.
1021. “ undulæfolia. Cunning.
1022. “ verniciflua. A. Cunning.
1023. “ verticillata. Willd.
1024. “ saligna. Seem.
1025. Callistachys ovata. Benth.
1026. “ purpurea. R. Br.

C. DICOTYLEDONES.

Papilionaceæ et Mimoseæ.

1027. Oxylobium argenteum. Benth.
1028. “ lineare. Benth.
1029. Chorizema varium. R. Br.
1030. “ rhombeum. R. Br.
1031. “ ilicifolium. Labill.
1032. Dillwynia floribunda. Bot. Mag.
1033. Pultenæa subumbellata. R. Br.
1034. “ daphnoides. Seem.
1035. Hovea Celsii. R. Br.
1036. Genista canariensis. L.
1037. “ candicans. L.
1038. Cytisus Atleyanus. Hort.
1039. “ racemosus. Marnock.
1040. Clianthus puniceus Soland.
1041. Swainsonia coronillæfolia. Salisb.
1042. “ Osborni. Lindl.
1043. Kennedia arenaria. Lindl.
1044. “ Banmanni. F. Mull.
1045. “ Maryattiana. Lindl.
1046. “ ovata. Lk.
1047. “ prostrata. Benth.
1048. “ racemosa. Hort.
1049. “ Sieboldii. Hort. Berol.
1050. Hardenbergia Comptoniana. Benth.
1051. “ monophylla. Benth.
1052. Zichya coccinea. Meissn.
1053. Phaseolus Caracalla. L.
1054. Fagelia bituminosa. Hook.
1055. Edwardsia microphylla. Salisb.
1056. Poinciana Gilliesii. Hook.
1057. Cassia floribunda. Cav.
1058. “ fistulosa. L.
1059. “ corymbosa. Lam.

C. DICOTYLEDONES.

PAPILIONACEÆ ET MIMOSEÆ.

1060. Cassia Blumenani. Hort. Haag.
1061. Indigofera Australis. Willd.
1062 Inga pulcherrima. Cerv.
1063. Erythrina laurifolia. W.
1064. " Cristo-galli. L.
1065. " Caffra. W.

POMACEÆ.

1066. Eriobotrya japonica (Mespilus). Lindl.

BREXIACEÆ.

1067. Brexia serrata. L.
1068. " chrysophylla. Sweet.
1069. " madagascariensis. Kerr.

LYTHRACEÆ.

1070. Heimia myrtifolia. Lk. and O.
1071. Cuphea platicentra. Benth.
1072. " miniata. Brogn.
1073. Lagerstroemia indica. L.

RHAMNEÆ.

1074. Berchemia volubilis. D. C.
1075. Rhamnus alaternus. L.
1076. Phylica ericoides. O. et Dietr.
1077. Pomaderis apetala. Labill.
1078. " discolor (othroleuca). Vent.
1079. Colletia ferox (Bictonensis). Bot. Mag.

APOCYNEÆ.

1080. Allamanda grandiflora. Hort.
1081. " neriifolia. A. Br.
1082. " nobilis. Moore.
1083. Tabernaemontana coronaria. L.

C. DICOTYLEDONES.

APOCYNEÆ.

1084. Nerium Oleander. L.
1085. Rynchospermum jasminoides. D. C.
1086. “ obtusum, fol. var. Hort.
1087. Echites nutans. Sinn.
1088. “ maxima. Lindl.
1089. “ Melaleuca. Hort.
1090. “ argyræa violacea. Lind.
1091. Mandevillea suaveolens. Lindl.
1092. Dipladenia amabilis. Hook.
1093. “ urophylla. Hook.
1094. “ Harrissii. Purdie.
1095. “ atropurpurea. D. C.
1096. “ crassinoda. D. C.
1097. Stephanotis floribunda. Hook.

OLEACEÆ.

1098. Olea europæa. L.
1099. “ angustifolia. L.
1100. “ fragrans. L.
1101. “ aquifolia. L.

SOLANEÆ.

1102. Nicotiana glauca. D. C.
1103. Datura arborea. L.
1104. Brugmansia Knightii pl. Hort.
1105. “ sanguinea. Rz. et Pav.
1106. Petunia variabilis. L.
1107. Nicrembergia filicaulis. D. C.
1108. “ gracilis. Hort.
1109. Solandra grandiflora. Sw.
1110. Juanulloa aurantiaca. Rz. et Pav.
1111. Brunfelsia americana. L.
1112. “ longiflora. Bot. Mag.

C. DICOTYLEDONES.

SOLANEÆ.

1113. Franciscea latifolia. Pohl.
1114. " acuminata. Pohl.
1115. " hydrangaeformis. Cham.
1116. " eximia. Scheidw.
1117. " Hopeana. Hook.
1118. Cestrum nocturnum. D. C.
1119. " aurantiacum. Lindl.
1120. Fabiana imbricata. D. C..
1121. Habrothamnus corymbosus. Brogn.
1122. " elegans. Brogn.
1123. " fascicularis. Endl.
1124. Jochroma tubulosum. Schdw.
1125. " coccineum. Schdw.
1126. Solanum Capsicastrum. Lk.
1127. " arboreum. Hort.
1128. " laciniatum. Ait.
1129. " japonicum. D. C.
1130. " Pseudo-capsicum. L.
1131. " marginatum. L.
1132. " robustum. Hort.
1133. " Warscewitzii. Hort.

ASCLEPIADEÆ.

1134. Asclepias angustifolia. L.
1135. " curassavica. L.
1136. Stapelia bidentata. Hort.
1137. " bufonia. Jacq.
1138. " campanulata. Mass.
1139. " ciliata. Thunb.
1140. " deflexa. Jacq.
1141. " glauca. Hort.
1142. " hirsuta. Hort.
1143. " lepida. Jacq.

C. DICOTYLEDONES.

Asclepiadeæ.

1144. Stapelia marmorata. Jacq.
1145. “ multiflora. D. C.
1146. “ obliqua. Willd.
1147. “ orbicularis. Don.
1148. Hoya carnosa. L.
1149. “ cinnamomea. Hook.
1150. “ bella. Hook.
1151. “ imperialis. Lindl.
1152. “ variegata. De Vriese.
1153. Ceropegia elegans. Lindl.

Convoloulaceæ.

1154. Convolvulus mauritanicus. Boiss.
1155. “ oleafolius. Desv.
1156. Ipomæa ficifolia. Lk.
1157. “ Learii (Pharbitis). Lindl.
1158. “ tuberosa. Willd.
1159. “ palmata. Hort.
1160. “ mexicana (grandiflora). Lindl.
1161. “ Sellowii. Otto et Dietr.

Plumbagineæ.

1162. Plumbago rosea.
1163. “ coerulea (capensis.) D. C.
1164. Statice arborescens. Brouss.
1165. “ Halfordii. Hort. Angl.
1166. “ sinuata (fimbriata). Hort. Belg.
1167. “ brassicaefolia (macrophylla). Bark.

Primulaceæ.

1168. Primula chinensis (praenitens). D. C.
1169. Cyclamen persicum. Mill.
1170. “ Coum. Mill.
1171. “ graecum. C. Koch.

C. DICOTYLEDONES.

PRIMULACEÆ.

1172. Cyclamen ibericum. Hort.
1173. " neapolitanum. Ten.
1174. " macrophyllum (africanum). Hort.

MYRSINEÆ.

1175. Myrsine africana. D. C.
1176. Ardisia crenulata. L.
1177. " " fructu-abbo. Lind.
1178. Theophrasta longifolia. Jacq.
1179. " imperialis. Lind.
1180. " ornata. D. Dom.

JASMINEÆ.

1181. Jasminum odoratinimum. Hort.
1182. " officinale. L.
1183. " revolutum. D. C.
1184. " Sambac. Hort.
1185. " Wallichianum. D. C.

BORAGINEÆ

1186. Echium arboreum. Jacq.
1187. " canariense. D. C.
1188. Heliotropium corymbosum. Hort.
1189. " Peruvianum. L.
1190. Myosctis azorica. B.

LABIATÆ.

1191. Salvia azurea compacta. Hort.
1192. " Grahami. Benth.
1193. " gesneriæfolia. Otto et Dietr.
1194. " ianthina. Otto et Dietr.
1195. " involucrata. Otto et Dietr.
1196. " patens. Cavan.
1197. " Roemeriana. Scheel.
1198. " splendens. D. C.

C. DICOTYLEDONES.

LABIATÆ.

1199. Leonitis Leonurus. Tournf.
1200. Phlomis luteus. Lk.
1201. Coleus scutellaroides (niger). Benth.
1202. " Blumei (concolor). Benth.
1203. Gardoquia multiflora. R. et Pav.
1204. Westringia rosmarinifolia. D. C.
1205. Rosmarinus officinalis. L.

VERBENACEÆ.

1206. Verbena aubletia. L.
1207. " melindris var. Hort.
1208. " teucrioides. Gill et Hook.
1209. Aloysia citriodora (Verbena). D. C.
1210. Lantana Camara var. Otto et Dietr.
1211. " delicatissima. Hort.
1212. " Youngii. Ait.
1213. Clerodendron fallax. Hort.
1214. " Kæmpferi. Thunb.
1215. " Bungei. Steud.
1216. " Balfouri. Hort.
1217. " Thompsoni. Balf.

SAXIFRAGINEÆ.

1218. Saxifraga Japonica. Fol. var. Sieb.
1219. " sarmentosa. L.
1220. Greyia Sutherlandii. Hook.

GESNERIACEÆ.

1221. Achimenes coccinea (Trevisana). Poir.
1222. " grandiflora. D. C.
1223. " heterophylla. Kl.
1224. " hybrida coccinea. Hort. Van Houtte.
1225. " longiflora. Benth.
1226. " patens. Benth.
1227. " pedunculata. Rgl.

C. DICOTYLEDONES.

Gesneriaceæ.

1228. Achimenes rosea. Hort.
1229. “ Skinneri. Lind.
1230. Nægelia amabilis. Fl. Van H.
1231. “ chromatella. Fl. Van H.
1232. “ cinnabarina. Fl. Van H.
1233. “ Lindleyana. Fl. Van H.
1234. “ refulgens. Linden.
1235. Eucodonia Ehrenbergii. H. et K.
1236. “ nægelioides. L. Van Houtte.
1237. Plectopoma gloxiniæfolia. Hanst.
1238. Gloxinia maculata. Herit.
1239. “ hybrida. Hort. Van Houtte.
1240. Gesneria bulbosa. Lk.
1241. “ Douglasii. Fl. V. H.
1242. “ macrantha. Kth. and O.
1243. “ refulgens. Hort.
1244. “ tubiflora. Hanst et Kl.
1245. Tydæa amabilis hybrida. Fl. V. H.
1246. “ gigantea. H. V. H.
1247. Columnea Schiedeana. Kth.
1248. Mitraria coccinea. Cav.
1249. Chirita sinensis. Lindl.

Cyrtandraceæ.

1250. Æschynanthus cordifolius. Hook.
1251. “ grandiflorus. Hort.
1252. “ Lobbianus. Hook.
1253. “ pulcher. Hook.
1254. “ Roxburghii. Hook.
1255. “ zebrinus. Hook.

Bignoniaceæ.

1256. Tecoma Australis. R. Br.
1257. “ Latrobeæ. R. Br.

C. DICOTYLEDONES.

Bignoniaceæ.

1258. Tecoma venusta (Bignonia). Kerr.
1259. “ capensis. L.
1260. Bignonia capreslata. W.
1261. “ Chamberleynii. Sims.
1262. “ panduræformis. D. C.
1263. “ speciosa. Grah.
1264. Incarvillea sinensis. L.
1265. Eceremocarpus puniceus. W.

Acanthaceæ.

1266. Asystasia coromandelina. Nees.
1267. Justitia speciosa. Otto et Dietr.
1268. Ruellia varians. L.
1269. “ maculata. W.
1270. Goldfusia anisophylla. Lk.
1271. Henfreya scandens. Lindl.
1272. Hexacentris mysorensis. Wight.
1273. Aphelandra aurantiaca. Lindl.
1274. “ “ var. Roezlii. Ortg.
1275. “ Leopoldii. Van Houtte.
1276. “ Porteana. Morel.
1277. “ pulcherrima. Hort.
1278. “ rosea. Hort.
1279. “ variegata. Morel.
1280. Geissomeria longiflora. Hook.
1281. Cyrthanthera magnifica. Lindl.
1282. Eranthemum pulchellum. Lind.
1283. “ Cooperi. Lind.
1284. “ igneum. Lind.
1285. “ sanguineum. Hort. Veitch.
1286. “ tuberculatum. Lindl.
1287. Peristrophe angustifolia. Nees. fol. var.
1288. Fittonia argyroneura. Coem.
1289. Gymnostachium giganteum. Lem.

C. DICOTYLEDONES.

ACANTHACEÆ.

1290. Gymnostachium Verschaffeltii. Lem.
1291. Thunbergia Chrysops. Hook.
1292. " Harrissii. Hook.
1293. " grandiflora. Roxb.

SCROPHULARINEÆ.

1294. Calceolaria rugosa. D. C.
1295. " hybrida. Hort.
1296. Alonsoa (Hemimeris) urticaefolia. L.
1297. " Warscewitzii. Hort.
1298. Angelonia Gardnerii. Lindl.
1299. Maurandia Barcleyana. Lindl.
1300. " Laceyana. Hort.
1301. Lophospermum scandens. Don.
1302. Rhodochiton volubile. D. C.
1303. Phygelius capensis. Lindl.
1304. Penstemon gentianoides. Benth.
1305. " Cobaea. Nutt.
1306. Torrenia asiatica. L.
1307. Buddleya globosa. L.
1308. Veronica speciosa. Cunningh.
1309. " salicifolia. Forst.
1310. " Andersonii. Hort.
1311. " Hendersonii. Hort.
1312. Sibthorpia europæa. L.
1313. Diplacus glutinosus. Nutt.
1314. Meyenia erecta. Benth.

COMPOSITEÆ.

1315. Senecio grandifolia. Nees.
1316. " mexicana (platainfolia). Hort.
1317. " Giesbrechtii. (Hort. Par.)
1318. Ligularia Kaempferi fol. var. Hort.
1319. Farfugium grande. Lindl.

C. DICOTYLEDONES.

COMPOSITEÆ.

1320. Stevia mexicana. Lk.
1321. " serrata. Caw.
1322. " lanceolata. Lag.
1323. Eupatorium ageratoides. L.
1324. " multiflorum. Hort.
1325. Tussilago japonica. Sieb.
1326. Conoclinium ianthinum, atropurp. Hort.
1327. Kleinia repens. D. C.
1328. " articulata. D. C.
1329. " ficoidea. D. C.
1330. " mandralisca. D. C.
1331. " pugnisformis. D. C.
1332. Othonna crassifolia. D. C.
1333. Micania scandens. Kth.
1334. Eurybia argentea. D. C.
1335. " ramulosa. D. C.
1336. Polymnia Uvedalis. D. C.
1337. " grandis. Hort.
1338. Perimenium discolor. Schrad.
1339. Montagnea heracleifolia. Hort.
1340. Verbesina alata. Hort.
1341. Chrysanthemum indicum. D. C.
1342. Leucophyto Brownii. Lindl.
1343. Humea elegans. Sm.
1344. Helichrysum speciosum. R. Br.
1345. " argenteum. R. Br.
1346. " robustum. R. Br.
1347. Cinneraria hybrida. Hort.
1348. Gazanea splendens. Hort.
1349. Uhdea pinnatifida. Kth.
1350. Stiftia chrysantha. Mikan.

COMBRETACEÆ.

1351. Combretum aureum. F. V.

C. DICOTYLEDONES.

COMBRETACEÆ.

1352. Combretum coccineum. Don.
1353. Terminalia Catappa. Gaertu.
1354. Quisqualis indica. Rumph.

ONAGRARIÆ.

1355. Lopezia mexicana. Cav.
1356. Zauschneria californica. Presl.
1357. Fuchsia fulgens. R. et Pav.
1358. " serratifolia. R. et Pav.
1359. " microphylla. R. et Pav.
1360. " linariaefolia. Hort.
1361. " arborescens. Spach.
1362. " corymbiflora. R. et Pav.
1363. " hybrida. Hort.

MELASTOMEÆ.

1364. Centradenia rosea. Lind.
1365. " floribunda. Planch.
1366. Pleroma elegans. Gardn.
1367. Lasiandra splendens. Lindl.
1368. " grandiflora. Lindl.
1369. " macrantha. Seem.
1370. Melastoma heteromalla. Mart.
1371. Monochaetum ensifolium. Naud.
1372. Rhexia diversifolia. D. C.
1373. Miconia scandens. Hort. Belg.
1374. Cyanophyllum magnificum. Naud.
1375. Medinilla magnifica. Lindl.
1376. " Sieboldiana. Planch.

MYRTACEÆ.

1377. Myrtus communis. L.
1378. " " microphyllus fol. var.
1379. " " macrophyllus flore. pllnó.

C. DICOTYLEDONES.

MYRTACEÆ.

1380. Psidium Cattleyanum. Sabin.
1381. Punica granatum. L.
1382. “ nana. Hort.
1383. Tristania laurina. R. Br.
1384. “ neriifolia. R. Br.
1385. Colothamnus quadrifidus. R. Br.
1386. Melaleuca alba. Sm.
1387. “ canescens. Lehm.
1388. “ diosmaefolia. Andr.
1389. “ ericaefolia. Sm.
1390. “ fulgens. Lk. and O.
1391. “ hypericifolia. Sm.
1392. “ linariaefolia. Lk.
1393. “ ovata. Hort.
1394. “ lucidula. Lk. var. Minor.
1395. “ thymifolia. Sm.
1396. Leptospermum baccatum. Sm.
1397. “ buxifolium. D. C.
1398. “ scoparium. Sm.
1399. “ juniperinum. Sm.
1400. “ flavescens. Hort. berol.
1401. “ lanigerum. Sm.
1402. “ persicifolium. Schawr.
1403. “ Preissianum. Lehm.
1404. “ stellatum. Cov.
1405. Baeckia virgata. Andr.
1406. Kunzea lanuginosa. Reichb.
1407. “ leptospermoides. F. Merell.
1408. “ violacea. Reichb.
1409. “ microphylla. Hort.
1410. Metrosideros florida. Forst.
1411. Callistemon lanceolatus. D. C.
1412. “ linearis. D. C.

C. DICOTYLEDONES.

MYRTACEÆ.

1413. Callistemon floribundus. Hort.
1414. “ purpurens. Hort.
1415. “ pinifolius. D. C.
1416. “ rigidus. R. Br.
1417. “ robustus. D. C.
1418. “ salignus. D. C.
1419. “ semperflorens. D. C.
1420. “ speciosus. D. C.
1421. “ viridiflorus. D. C.
1422. “ viminalis. G. Don.
1423. Eucalyptus amygdalina. Labill.
1424. “ calophylla. R. Br.
1425. “ citriodora. Muell.
1426. “ colossa. Muell.
1427. “ diversifolia. R. Br.
1428. “ alba. Muell.
1429. “ flexuosa. Lk. (Agonis.)
1430. “ globulus. Labill.
1431. “ Gunnii. R. Br.
1432. “ longifolia. Muell.
1433. “ obliqua. Muell.
1434. “ piperita. R. Br.
1435. “ populifolia. Muell.
1436. “ robusta. R. Br.
1437. “ saligna (viminalis). Lk.
1438. “ rostrata. Muell.
1439. “ resinifera. R. Br.
1440. Eugenia Australis. Wendl.
1441. “ Jambos. D. C.
1442. “ Ugnei. Hook.

CACTEÆ.

1443. Mammillaria amoena. Hopfr.
1444. “ auriceps. Lem.

EXOTIC AND TENDER PLANTS—*(Continued)*.

C. DICOTYLEDONES.

Cacteæ.

1445. Mammillaria bicolor. Lem.
1446. “ densa. Lk. et Otto.
1447. “ discolor. Haw.
1448. “ echinata. D. C.
1449. “ glochidiata. Mart.
1450. “ graulis minor. Salm. D.
1451. “ multiceps. Salm. D.
1452. “ polythele. Mart.
1453. “ pusilla. D. C.
1454. “ rhodantha. Lk. et O.
1455. “ radians. D. C.
1456. Echinocactus cornigerus. D. C.
1457. “ gibbosus. D. C.
1458. “ Linkii. Lem.
1459. “ Ottonis. Lem.
1460. “ pumilus. Lem.
1461. “ turbinatus. Lk. and O.
1462. Echinopsis Eyriesii. Lucc.
1463. “ multiplex. Lucc.
1464. “ Pentlandii. Salm. D.
1465. “ rhodocantha. Salm D.
1466. “ Luccariniana. Pfr.
1467. Echinocereus Ehrenbergii. Engelm.
1468. “ histrix. Hort.
1469. “ multiangularis. Engelm.
1470. “ strigosus. Engelm.
1471. Cereus flagelliformis. Haw.
1472. “ giganteus. Engelm.
1473. “ grandiflorus. Haw.
1474. “ nycticalus. Lk.
1475. “ hexagonus. Hort.
1476. “ Ackermanni. Salm. D.
1477. “ crenatus Salm. D.

C. DICOTYLEDONES.

Cacteæ.

1478. Cereus latifrons. Salm. D.
1479. " Peruvianus. Tabern.
1480. " serpentinus. Lag.
1481. " speciosus. D. C.
1482. " tetragonus. Lk.
1483. " flagelliformis. D. C.
1484. " triangaleris. Haw.
1485. " alatus hybr. Hort.
1486. Epiphyllum Altenstemii. Lk.
1487. " truncatum. Haw.
1488. " " violaceum. Hort.
1489. " " minor. Hort.
1490. Opuntia brasiliensis. Gill.
1491. " cylindrica. Juss.
1492. " Ficus-indica. Mill.
1493. " fullvispina. Salm. D.
1494. " glomerata. Haw.
1495. " mycrodasys. Lehm.
1496. " senilis. Hort.
1497. " Tuna. Mill.
1498. " Peruviana. Lk.
1499. Pereskia (Peirescia) aculeata. Plum.
1500. " Bleo. D. C.
1501. " rosea. Hort. Berol.
1502. " floribunda. Hort.
1503. Rhipsalis crispata. Pfr.
1504. " mesembrianthoides. Haw.
1505. " paradoxa. Salm. D.
1506. " rhombea. Pfr.
1507. " salicornioides. Lehm.
1508. " stricta. Salm. D.

Rubiaceæ.

1509. Coffea arabica. L.

C. DICOTYLEDONES.

RUBIACEÆ.

1510. Serissa fœtida. L.
1511. “ japonica, fol. var. Sieb.
1512. Psychotria leucantha (Rudgea). R. Br.
1513. Pavetta borbonica. Hort.
1514. “ caffra. L.
1515. Ixora coccinea. L.
1516. “ crocata. Lindl.
1517. “ javanica. Bl.
1518. “ salicifolia (angustifolia). D. C.
1519. Rondeletia speciosa. Hook.
1520. “ anomala. Lindl.
1521. Pentas carnea. Benth.
1522. Bouwardia triphylla. Salisb.
1523. “ Leyantha. Benth.
1524. “ splendens. Grah.
1525. “ jasminoides. Hort.
1526. Manettia bicolor. Paxt. Mag.
1527. “ cordata. D. C.
1528. Gardenia radicans. Thunb.
1529. “ “ foliis albis. Hort.
1530. “ florida. D. C.
1531. “ Fortunei. Lindl.
1532. “ “ foliis variegatis. Hort.
1533. Gardenia citriodora. Hook.
1534. Posoqueria longiflora. Ch. Lem.
1535. Moussænda frondosa. D. C.
1536. “ macrophylla. Hort. Belg.
1537. Burchellia capensis. D. C.
1538. Rogiera cordata. Pl.
1539. “ gratissima. Lind.

AMPELIDEÆ.

1540. Cissus discolor (marmorata). Blume.
1541. “ amazonica. Lind.

C. DICOTYLEDONES.

AMPELIDEÆ.

1542. Cissus porphyrophylla. Lind.
1543. " Lindeni. E. Endr.

ARALIACEÆ.

1544. Aralia Australis. R. Br.
1545. " catalpæfolia. Lind.
1546. " crassifolia. C. Koth.
1547. " Guatemalensis. Hort.
1548. " leptophylla. Hort.
1549. " " macrophylla. Hort.
1550. " quinquefolia. C. Koch.
1551. " " foliis variegatis. Hort.
1552. " papyrifera. Hook.
1553. " Scheffleri. Hort.
1554. " longifolia. C. Koch.
1555. " trifoliata. C. Koch.
1556. " integrifolia. Hort.
1557. Gastonia palmata. Roxb.
1558. Fatsia Japonica. Dcn. et Pl.
1559. " " fol. var. Hort.
1560. Hedera Algeriensis. D. C.
1561. " arborea foliis variegatis. Hort.

APPENDIX M.

STATEMENT OF WORK DONE

ON SEVERAL UNDERTAKINGS OF THE

DEPARTMENT OF PUBLIC PARKS,

JUNE, 1872, TO JANUARY, 1874.

STATEMENT OF WORK DONE

ON SEVERAL UNDERTAKINGS OF THE DEPARTMENT OF PUBLIC PARKS,

JUNE, 1872, TO JANUARY, 1874.

Through the organization for design and superintendence as indicated below[*] general designs, plans, details, specifications and instructions have been prepared, all professional superintendence provided, estimates and measurements made, accounts kept and contract work inspected and certified for the various works named in the following statement, and for the quantities as therein stated, for the last twenty months.

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[*] Olmsted & Vaux	Landscape Architects and General Superintendents to May 29, 1872.
Calvert Vaux	Landscape Architect to October 24, 1872. Consulting Architect to June 4, 1873. Architect of Museums of Natural History and of Art to Jan., 1874.
Fred. Law Olmsted,	Landscape Architect, October 24, 1872, to January, 1874.
J. Wrey Mould	Associate Architect to January, 1874.
Julius Munckwitz	Superintendent of Architectural Constructions to December 23, 1873. Superintending Architect to January, 1874.
John Bogart	Acting Chief Engineer, August 13, 1872, to September 15, 1872. Chief Engineer to December 23, 1873. Engineer to January, 1874.
A. O. Delano	Acting Engineer to August 13, 1872. Assistant Engineer in charge Central Park to December 17, 1872.
Frank A. Calkins	Assistant Engineer in charge City Squares and Places to January, 1874.
Fred. L. Underhill,	Assistant Engineer, general service, to December 17, 1872. Assistant Engineer in charge Central Park to January, 1874.
Chas. M. Harris	Asst. Engineer, general service, September 4, 1872, to October 20, 1873. Asst. Engineer in charge Morningside Park to January, 1874.
Jas. C. Aldrich	Assistant Engineer in charge Riverside Park and on general service, October 6, 1873, to January, 1874.

CENTRAL PARK.

Enclosing Wall.

2,800	lineal feet upper vertical wall of Ohio stone.
8,155	“ “ lower vertical wall, Ashlar.
6,585	“ “ blue stone base coping.
9,105	“ “ rubble foundation wall.
2,268	“ “ “ “ “ laid dry.
66	“ “ wing wall and coping near Transverse roads.
2	piers for Transverse roads.

Park Slopes adjacent to Eighth Avenue.

10,500	cubic yards filling.

Entrance Eighth Avenue and 85th Street (Mariners' Gate).

5,000	cubic yards excavation, rock.
1,500	“ “ “ earth.
500	lineal feet roadway, 33 feet wide, paved.
1,000	“ “ gutters built.

Entrance Eighth Avenue and 100th Street (Boys' Gate).

3,500	cubic yards filling.

Entrance Seventh Avenue and 110th Street (Warriors' Gate).

500	cubic yards filling on Drive.

Inscope Arch.

4,800	cubic yards excavation.
216	piles driven.
3,500	square feet timber grillage in foundations.
45	lineal feet temporary bridge, 60 feet wide.
2,000	square feet sheet piling.

Walks in Southeast System.

600	cubic yards excavation.
9,000	“ “ filling.
1,050	lineal feet walk foundation.
10	silt basins built.
410	lineal feet 6-inch vitrified pipe laid.
175	“ “ 4 “ “ “ “

Concert Ground on Mall.

22,200	square feet walk graded and paved.
7,163	lineal feet benches constructed and set.

Pavement of Walks near Mall.

40,815	square feet Grahamite pavement.

Boat House.

9,000 feet timber worked ready for construction.

Casino.

260 cubic yards rock excavation.
61 “ “ stone masonry.
3,200 feet timber.
1,500 square feet flooring.

Carrousel.

700 cubic yards excavation.
65 “ masonry.

South outer Wall of Central Park (59th Street).

2,200 cubic yards excavation.
2,200 “ “ soil filling.

North outer Wall of Central Park (110th Street).

3,000 cubic yards filling.

The Plaza (Fifth Avenue, 58th and 59th Streets).

250 lineal feet curb set.

The Glen Span.

3,900 feet timber.
35 cubic yards stone masonry.

Rustic Bridge.

280 feet timber.

Bank-rock Bridge.

2,300 feet timber.

Rustic Seats.

3 large seats made near Schiller monument.

Rinderberg.

Remodeled and repaired.

Manhattan Square.

130,000 cubic yards filling.
12,500 “ “ rock excavation.

Museum of Natural History.

570 cubic yards stone masonry for foundations.

THE BATTERY.

140 cubic yards excavetion.
231 lineal feet vitrified pipe laid.
1 receiving basin built.
27,170 square feet pavement laid on walks.
26,500 “ “ walks graded.
400 lineal feet gas-pipe laid.
8 lamp-posts set.

CITY HALL PARK.

110 cubic yards excavation.
150 lineal feet vitrified pipe laid.
124 “ “ lead water-pipe laid.
7 stop-cocks set.
2 basins built.
1 street washer set.
4 drinking hydrants set.

FIVE POINTS PARK.

340 cubic yards excavation.
580 “ “ filling.
85 “ “ foundation masonry.
150 lineal feet vitrified pipe laid.
130 “ “ lead water-pipe laid.
374 “ “ six-inch curb set.
2 stop-cocks set.
3 basins built.

JACKSON PARK.

5,860 square feet flagging laid.

WASHINGTON SQUARE.

260 cubic yards excavation.
35 “ “ soil filling.
7,890 square yards carriage pavement repaired.
380 lineal feet curb set.
16 “ “ vitrified pipe laid.
120 “ “ water-pipe laid.
1 drinking fountain set.
1 “ hydrant moved and reset.
1 street washer set.
1 basin built.

UNION SQUARE.

5,040 cubic yards earth excavation.
37 “ “ rock “
1,100 “ “ soil filling.
5,716 square yards Belgian pavement laid and relaid.
49,894 “ feet walk “ “ “

49,600	square feet walks graded.
6,100	" " stone crosswalks laid and relaid.
3,166	lineal feet curb set.
860	" " vitrified pipe laid.
1,250	" " gas "
321	" " water "
6	stop-cocks set.
2	street washers set.
2	drinking hydrants set.
1	man-hole and trap to sewer set.
25	lamp-posts set.
20	basins built.

WORTH MONUMENT.

745	cubic yards earth excavation.
8,157	square feet of plaza graded and paved.
432	lineal feet curb set.
286	" " vitrified pipe laid.
70	" " water " "
1	stop-cock set.
2	basins set.
5	lamp-posts set.
10	trees planted.
9,850	square feet flagging taken up.

MADISON SOUARE.

110	cubic yards earth excavation.
2,035	square yards Belgian pavement laid and relaid.
3,600	" feet stone crosswalks " "
1,800	" " flagging relaid.
635	" " walk pavement relaid.
256	lineal " curb set.
104	" " vitrified pipe laid.
70	" " water " "
1	basin built.
2	drinking hydrants set.
4	stop-cocks.

STUYVESANT SQUARE.

32,040	square feet flagging relaid.
2,216	lineal " curb reset.
200	square " crosswalk relaid.
250	cubic yards earth excavation.

PARK AVENUE PARKS.

1,032	lineal feet granite coping set.
1,089	" " iron railing set.

PLACE, BOULEVARD AND 63D STREET.

100	cubic yards earth excavation.

MOUNT MORRIS SQUARE.

26,153	square feet walk laid (Day Vulcanite pavement).
124	rock steps made (average 7.4 x 1.4).

PLACE, BOULEVARD AND 65TH STREET.

500	cubic yards rock excavation.

MORNINGSIDE PARK.

8,200	cubic yards soil excavated and piled.
1,800	“ “ earth excavated.
975	“ “ rock “
400	lineal feet brick sewer built.
1,200	“ “ walks graded (20 feet wide).

RIVERSIDE PARK.

1,350	cubic yards soil excavated and piled.
1,000	“ “ earth excavation.
1,405	“ “ retaining wall built.
2,395	“ “ filling.
89	acres cleared.

APPENDIX N.

TABLES

OF

LABOR AND RATES OF WAGES.

STATEMENT *showing in Number of Days the Force, in various classes, employed on the Parks and other Works under charge of the Board, for eight months ending December 31st, 1872.*

1872.	Superintendent.	Architects.	Topographical Engineer.	Engineers.	Ast. Engineers.	Draughtsmen.	Surveyors.	Levelers.	Rodmen.	Chainmen.	Axemen.	Flagmen.	Tapemen.	Borers.	Division Engineers.	Meteorologist.	Ast. to Meteorologist.	Clerks.	Messengers.	Stone Breakers.
May	31	62	31	31	329	99	31	27	182	183	401	....	....	....	124	31	....	278	197	982
June	30	60	30	15	273	90	30	25	110	145	253	....	....	....	90	30	....	291	165	414
July	31	62	31	....	62	97	31	21	62	162	202	....	....	....	62	31	31	278	68	....
August	31	62	31	....	62	93	31	27	78	167	252	...	24	21	62	31	31	306	108	...
September	30	60	30	24	228	162	60	111	141	228	323	16	25	29	....	30	30	324	124	....
October	31	62	31	27	227	194	92	76	111	228	284	27	27	30	....	31	31	303	134	....
November	30	60	30	26	296	202	85	23	86	258	323	....	52	28	....	30	30	293	129	....
December	31	62	31	26	269	205	62	26	75	256	305	....	52	....	....	31	31	302	130	....

STATEMENT *showing in Number of Days the Force, in various classes, employed on the Parks and other Works under charge of the Board, for eight months ending December 31st, 1872—(Continued).*

1872.	Surgeon.	Captain.	Lieutenant.	Sergeants.	Roundsmen.	Patrolmen.	Gate-keepers.	Bridge-tenders.	Water-boys.	Sculptor.	Inspectors.	General Foremen.	Foremen.	Assistant Foremen.	Carpenters.	Painters.	Stone Cutters.	Masons.	Mechanical Engineer.	Iron-worker.
May	31	31	31	213	93	2,063	814	82	24	27	62	84	1,332	22	438	208	2,156	1,691	....	25
June	30	30	30	210	89	1,997	779	60	12	25	30	56	852	25	385	188	1,895	1,614	....	24
July	31	31	31	216	92	1,993	808	62	....	27	4	31	411	27	383	202	1,954	1,877	....	23
August	31	31	31	217	93	2,060	816	62	....	27	....	31	441	27	1,185	212	2,199	2,298	....	26
September	30	30	30	210	90	1,763	728	60	....	25	...	52	486	62	1,126	218	2,177	2,124	....	20
October	31	31	31	211	93	1,949	762	62	....	27	....	62	556	81	1,143	211	2,503	2,309	....	23
November	30	27	30	210	90	1,913	702	60	....	25	.. .	56	524	72	757	191	1,924	1,270	16	15
December	31	....	31	217	93	1,984	701	62	....	25	....	62	509	44	794	199	1,298	127	31	....

STATEMENT *showing in Number of Days the Force, in various classes, employed on the Parks and other Works under charge of the Board, for eight months ending December 31st, 1872—(Continued).*

1872.	Blacksmiths.	Helpers.	Plumbers.	Landscape Gardener.	Division Gardeners.	Gardeners.	Blasters.	Rockmen.	Skilled Laborers.	Laborers.	Double Teams.	Carts.	Steam Engineers.	Eight horse Teams.	Female Attendants.	Watchmen.
May....................	498	432	58	31	143	726	222	8,013	1,374	29,298	4,456	5,295	137	8	225	....
June....................	324	278	55	30	142	710	120	4,236	1,049	21,410	2,549	3,520	78	26	234	....
July....................	205	181	57	31	146	752	25	1,044	562	12,808	631	1,773	3	....	244	....
August....................	221	185	58	31	142	828	44	1,837	557	14,134	702	2,222	......	....	244	....
September..............	297	193	55	30	138	775	90	3,269	615	14,589	1,063	2,440	......	....	235	....
October..................	336	232	58	31	140	819	123	4,610	852	15,606	1,381	2,498	......	....	243	15
November..............	297	206	55	30	115	720	101	3,753	799	13,233	1,122	1,999	......	....	229	....
December..............	262	183	55	31	106	745	100	3,890	941	13,882	1,115	1,902	......	....	252	....

STATEMENT *showing the average Working Force, in various classes, per day, Employed on the Parks and other Works under charge of the Board, for eight months ending December 31st,* 1872.

MONTHS.	Superintendent.	Architects.	Topographical Engineer.	Engineer.	Ast. Engineers.	Draughtsmen.	Surveyors.	Levelers.	Rodmen.	Chainmen.	Axemen.	Flagmen.	Tapemen.	Borers.	Division Engineers.	Meteorologist.	Ast. to Meteorologist.	Clerks.	Messengers.	Stone Breakers.	Surgeon.	Captain.	Lieutenant.	Sergeants.	Roundsmen.	Patrolmen.	Gate Keepers.	Bridge Tenders.
1872.																												
May	1	2	1	1	11	3	1	1	6	7	15	...	...	...	4	1	...	9	6	39	1	1	1	7	3	67	26	3
June	1	2	1	1	9	3	1	1	4	6	10	...	...	...	3	1	...	10	5	32	1	1	1	7	3	64	26	2
July	1	2	1	...	2	3	1	1	2	6	7	...	...	...	2	1	1	9	2	...	1	1	1	7	3	64	26	2
August	1	2	1	...	2	3	1	1	3	6	9	...	1	1	2	1	1	10	4	...	1	1	1	7	3	66	26	2
September	1	2	1	1	8	5	2	4	5	9	13	1	1	1	...	1	1	11	5	...	1	1	1	7	3	59	24	2
October	1	2	1	1	7	6	3	2	4	8	11	1	1	1	..	1	1	10	5	...	1	1	1	7	3	63	25	2
November	1	2	1	1	10	7	3	1	3	10	12	...	2	1	...	1	1	10	5	...	1	1	1	7	3	64	24	2
December	1	2	1	1	9	7	2	1	2	10	12	...	2	...	...	1	...	10	5	...	1	...	1	7	3	64	23	2

STATEMENT *showing the average Working Force, in various classes, per day, employed on the Parks and other Works under charge of the Board, for eight months ending December 31st, 1872.—(Continued).*

MONTHS.	Water Boy.	Sculptor.	Inspectors.	General Foremen.	Foremen.	Ast. Foremen.	Carpenters.	Painters.	Stone Cutters.	Masons.	Mechanical Engineers.	Iron-Workers.	Blacksmiths.	Helpers.	Plumbers.	Landscape Gardener.	Division Gardeners.	Gardeners.	Blasters.	Rockmen.	Skilled Laborers.	Laborers	D. Teams.	Carts.	Steam Engineers.	8 Horse Teams.	Female Attendants.	Watchmen.
1872.																												
May	1	1	2	3	43	1	16	8	80	63	...	1	18	16	2	1	5	23	8	258	44	945	149	171	5	1	7	...
June	1	1	1	2	28	1	15	8	76	65	...	1	13	11	2	1	5	24	5	151	35	714	85	117	3	2	8	...
July	...	1	1	1	13	1	14	7	72	69	...	1	8	7	2	1	5	24	1	40	18	413	23	57	1	...	8	...
August	...	1	...	1	14	1	44	8	81	85	...	1	8	7	2	1	5	27	2	68	18	456	26	72	...	...	8	...
September	...	1	...	2	16	2	43	8	87	85	...	1	12	8	2	1	5	26	4	131	21	486	43	81	...	...	8	...
October	...	1	...	2	18	3	42	8	93	89	...	1	12	9	2	1	5	26	5	171	27	504	48	81	...	...	8	1
November	...	1	...	2	17	3	32	8	87	60	1	1	12	9	2	1	4	24	5	156	27	441	45	67	...	...	8	...
December	...	1	...	2	16	2	32	8	68	7	1	...	10	7	2	1	4	24	4	150	30	448	45	61	...	...	8	...

STATEMENT *showing in Number of Days the Force, in various classes, employed on the Parks and other Works under charge of the Board, for twelve months ending December 31st, 1873.*

MONTHS.	Superintendent.	Architects.	Topographical Engineer.	Engineer.	Ast. Engineers.	Draughtsmen.	Surveyors.	Levelers.	Rodmen.	Chainmen.	Axemen.	Consulting Engineer.	Tapemen.	President.	Landscape Architect.
1873.															
January	31	62	31	27	242	179	33	27	93	247	233	..	52	..	..
February	28	56	28	24	192	199	52	24	80	212	190	..	47	..	..
March	31	62	31	29	212	218	57	26	88	234	193	..	52	..	..
April	30	60	30	30	190	194	56	25	80	210	184	..	52	..	..
May	31	62	31	31	212	221	58	27	62	216	214	..	54	..	..
June	31	60	30	30	205	184	55	25	60	200	200	..	50	..	30
July	31	62	31	31	213	209	54	27	62	216	216	31	54	31	31
August	31	62	31	31	212	207	52	26	62	208	208	31	52	3	31
September	30	60	30	30	206	202	52	26	60	208	208	30	52	30	30
October	31	62	31	31	234	209	54	27	62	216	216	..	54	31	31
November	30	60	30	30	235	200	50	25	60	200	200	..	50	30	30
December	31	62	31	31	244	209	54	27	62	216	216	..	54	31	31

STATEMENT *showing in Number of Days the Force, in various classes, employed on the Parks and other Works under charge of the Board, for twelve months, ending December 31st 1873—(Continued).*

MONTHS.	Meteorologist.	Ast. to Meteorologist.	Clerks.	Messengers.	Book-keeper.	Surgeons.	Captain.	Lieutenant.	Sergeants.	Roundsmen.	Patrolmen.	Gate Keepers.	Bridge Tenders.	Secretary.	Sculptors.
1873.															
January	31	31	269	135	..	31	31	31	168	21	1,596	776	62	..	26
February	28	28	125	110	..	28	28	28	138	..	1,343	708	56	..	24
March	31	31	243	128	..	31	31	31	148	..	1,504	769	62	..	26
April	30	30	236	130	..	30	30	30	149	..	1,437	747	60	..	26
May	31	31	212	133	..	31	31	31	125	..	1,450	736	35	..	26
June	30	30	295	188	30	30	30	30	120	..	1,411	708	30	..	25
July	31	31	306	193	31	45	31	27	109	..	1,381	735	31	16	25
August	31	31	305	187	31	62	31	31	123	..	1,365	728	62	31	26
September	30	30	296	186	30	60	30	30	120	..	1,369	683	60	30	26
October	31	31	306	193	31	62	31	..	124	..	1,624	738	62	31	27
November	30	30	295	180	30	60	30	..	120	..	1,563	708	60	30	24
December	31	31	306	193	31	39	31	..	124	..	1,651	741	62	31	26

STATEMENT *showing in Number of Days the Force, in various classes, employed on the Parks and other Works under charge of the Board, for twelve months, ending December 31st, 1873—(Continued).*

MONTHS.	Ast. Secretary.	General Foremen.	Foremen.	Ast. Foremen.	Carpenters.	Painters.	Stone Cutters.	Masons.	Mech. Engineer.	Janitor.	Blacksmiths.	Helpers.	Plumbers.	Head Gardeners.	Division Gardeners.
1873.															
January	..	62	516	21	797	206	1,365	112	31	..	273	166	57	62	100
February	..	56	460	14	727	181	1,341	116	28	..	251	155	52	56	108
March	..	62	509	23	820	248	1,540	278	31	..	285	171	57	62	122
April	..	60	506	83	846	201	2,082	1,351	30	..	280	162	56	60	125
May	..	62	498	112	593	157	629	580	31	..	133	85	58	62	132
June	30	60	433	105	311	101	13	145	30	30	74	25	55	61	128
July	31	62	451	134	425	180	919	1,543	31	31	189	62	56	62	136
August	31	62	446	134	466	228	971	1,752	31	31	203	74	57	62	127
September	30	60	440	134	475	229	1,027	1,823	30	30	191	77	56	60	129
October	31	32	456	141	508	231	1,182	1,937	31	31	197	80	58	31	66
November	30	30	430	130	432	206	1,128	1,822	30	30	158	69	53	30	..
December	31	31	519	137	473	232	1,386	1,124	31	31	226	77	57	31	..

STATEMENT *showing in Number of Days the Force, in various classes, employed on the Parks and other Works under charge of the Board, for twelve months, ending December 31st,* 1873—*(Continued).*

MONTHS.	Gardeners.	Blasters.	Rockmen.	Skilled Laborers.	Laborers.	D. Teams.	Carts.	Station Men.	Night Watchmen.	Female Attendants.	Watchmen.	Vice President.	Treasurer.	Chief Clerk.	Pile Drivers.
1873.															
January	743	102	3,929	764	13,811	1,257	1,901	..	..	272	36	..	..	..	..
February	603	100	3,595	972	12,689	1,214	1,863	..	..	242	84	..	..	..	..
March	672	109	3,912	987	13,140	877	782	..	..	253	93	..	..	..	..
April	686	122	4,433	793	14,264	1,558	2,479	..	..	245	90	..	..	..	..
May	668	27	1,118	683	10,357	446	1,471	93	208	271	93	..	..	..	..
June	660	1	24	584	8,332	209	1,271	90	210	265	90	..	..	..	..
July	686	68	1,956	746	11,208	879	1,855	93	217	270	93	..	..	16	..
August	642	74	2,072	762	11,154	884	1,860	93	217	274	93	3	3	31	..
September	648	75	2,161	758	11,170	792	1,949	89	199	318	90	30	30	30	..
October	603	71	2,168	790	11,368	908	1,946	4	3	334	86	31	31	31	74
November	282	63	1,821	717	9,848	762	1,507	..	..	304	90	30	30	30	19
December	308	102	2,902	775	14,404	1,197	1,597	..	..	307	93	31	31	31	..

STATEMENT *showing the average Working Force, in various classes, per day, employed on the Parks and other Works under charge of the Board, for twelve months, ending December 31st, 1873.*

MONTHS.	Superintendent.	Architects.	Topographical Engineer.	Engineers.	Ast. Engineers.	Draughtsmen.	Surveyors.	Levelers.	Rodmen.	Chainmen.	Axemen.	Consulting Engineer	Tapemen.	President.	Landscape Architect.	Meteorologist.	Assistant to Meteorologist.	Clerks.	Messengers.	Book-Keeper,
1873.																				
January	1	2	1	1	8	6	1	1	3	9	9	..	2	..	..	1	1	9	5	..
February	1	2	1	1	7	7	2	1	3	9	8	..	2	..	..	1	1	8	5	..
March	1	2	1	1	7	7	2	1	3	9	7	..	2	..	..	1	1	8	5	..
April	1	2	1	1	6	6	2	1	3	8	7	..	2	..	..	1	1	8	5	..
May	1	2	1	1	7	7	2	1	2	8	8	..	2	..	..	1	1	7	5	..
June	1	2	1	1	7	6	2	1	2	8	8	..	2	..	1	1	1	10	6	1
July	1	2	1	1	7	7	2	1	2	8	8	1	2	1	1	1	1	10	6	1
August	1	2	1	1	7	7	2	1	2	8	8	1	2	1	1	1	1	10	6	1
September	1	2	1	1	7	7	2	1	2	8	8	1	2	1	1	1	1	10	7	1
October	1	2	1	1	8	7	2	1	2	8	8	..	2	1	1	1	1	10	6	1
November	1	2	1	1	8	7	2	1	2	8	8	..	2	1	1	1	1	10	6	1
December	1	2	1	1	8	7	2	1	2	8	8	..	2	1	1	1	1	10	6	1

STATEMENT *showing the average Working Force, in various classes, per day, employed on the Parks and other Works under charge of the Board, for twelve months, ending December 31st, 1873—(Continued).*

MONTHS.	Surgeons.	Captain.	Lieutenant.	Sergeants.	Roundsmen.	Patrolmen.	Gate Keepers.	Bridge Tenders.	Ast. Secretary.	Sculptor.	Secretary.	Gen. Foremen.	Foremen.	Ast. Foremen.	Carpenters.	Painters.	Stone Cutters.	Masons.	Mech. Engineer.	Janitor.
1873.																				
January	1	1	1	5	1	51	25	2	..	1	..	2	17	1	31	8	65	7	1	..
February	1	1	1	5	..	48	25	2	..	1	..	2	16	1	32	8	71	7	1	..
March	1	1	1	5	..	49	25	2	..	1	..	2	16	1	32	9	64	11	1	..
April	1	1	1	5	..	48	25	2	..	1	..	2	17	3	33	7	80	52	1	..
May	1	1	1	4	..	47	24	1	..	1	..	2	16	4	23	6	33	22	1	..
June	1	1	1	4	..	47	24	1	1	1	.	2	14	3	12	4	13	6	1	1
July	1	1	1	4	..	44	24	1	1	1	1	2	15	4	16	6	35	59	1	1
August	2	1	1	4	..	44	23	2	1	1	1	2	15	4	18	8	39	70	1	1
September	2	1	1	4	..	46	23	2	1	1	1	2	13	5	18	9	41	73	1	1
October	2	1	..	4	..	52	24	2	1	1	1	1	15	5	19	9	45	72	1	1
November	2	1	..	4	..	52	24	2	1	1	1	1	14	5	19	8	51	79	1	1
December	1	1	..	4	..	53	24	2	1	1	1	1	17	5	18	9	60	45	1	1

STATEMENT *showing the average Working Force, in various classes, per day, employed on the Parks and other Works under charge of the Board, for twelve months, ending December 31st, 1873—(Continued).*

MONTHS.	Blacksmiths.	Helpers.	Plumbers.	Head Gardeners.	Division Gardeners.	Gardeners.	Blasters.	Rockmen.	Skilled Laborers.	Laborers.	D. Teams.	Carts.	Station Men.	Night Watchmen.	Female Attendants.	Watchmen.	Vice-President.	Treasurer.	Chief Clerk.	Pile Drivers.
1873.																				
January	10	6	2	2	4	24	4	151	29	442	43	61	..	..	9	3	.	..	..	..
February	11	7	2	2	4	22	5	150	35	453	49	67	.	..	9	3	..	..	..	..
March	11	7	2	2	5	22	5	157	32	424	31	57	..	..	8	3	..	..	..	..
April	11	6	2	2	5	23	5	170	26	475	56	83	..	..	8	3	..	..	..	..
May	5	3	2	2	5	22	1	93	22	334	15	47	3	7	9	3	..	..	..	..
June	3	1	2	2	4	22	1	24	19	278	7	42	3	7	9	3	..	..	..	..
July	7	2	2	2	4	22	3	75	24	361	28	62	3	7	9	3	..	..	1	..
August	8	3	2	2	4	21	3	80	25	390	30	60	3	7	9	3	1	1	1	..
September	7	3	2	2	4	21	3	83	25	372	26	65	3	7	11	3	1	1	1	..
October	7	3	2	1	3	19	3	80	26	367	31	63	2	1	11	3	1	1	1	3
November	7	3	2	1	..	9	3	79	24	328	35	58	..	..	10	3	1	1	1	2
December	9	3	2	1	..	10	4	112	25	465	46	61	..	..	10	3	1	1	1	..

TABLE *showing the rate of pay per day from the commencement of the work to November 1st, 1873. (The working day previous to April, 1870, was ten hours; since that date it is computed at eight hours.)*

	1857.	1858.		1859.		1860.		1861.		1862.		1863.		1864.	
	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.
Foremen	$1 50	$1 50	$1 75	$1 75	$2 00	$2 00	$2 00	$2 00	$2 00	$2 00	$2 00	$2 00	$2 00	$2 50	$3 00
Assistant foremen	......	......	1 25	1 25	1 50	1 50	1 50	1 50	1 50	1 50	1 50	1 50	1 65	1 80	2 25
Laborers	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	90	90	1 00	1 25	1 25	1 50	1 80
Double teams	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	2 75	2 60	2 70	3 30	3 50	3 90	4 40
Carts	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	1 80	1 75	1 80	2 20	2 50	2 80	3 15
Blacksmiths	1 50	1 50	1 50	1 50	1 75	1 87½	1 87½	1 87½	1 60	1 60	1 65	1 90	2 00	2 50	3 00
Helpers	1 00	1 00	1 00	1 12	......	......	1 25	1 25	1 00	1 05	1 10	1 25	1 35	1 60	1 90
Carpenters	1 50	1 50	1 50	1 50	1 75	1 75	1 75	1 75	1 60	1 60	1 75	2 00	2 00	2 50	3 00
Rockmen	......	......	......	......	1 10	1 10	1 10	1 10	......	......	......	......	......	1 60	1 90
Blasters	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Hand-drillers	......	......	......	......	1 10	1 10	1 10	1 10	......	......	......	......	......	......	......
Gardeners	......	......	......	1 40	1 40	1 00	1 30	1 30	1 15	1 10	1 10	1 30	1 40	1 60	1 90
Masons	......	......	1 75	2 00	2 00	2 00	2 00	2 00	1 65	......	1 75	......	2 20	2 50	3 00
Stone-cutters	......	......	1 75	2 00	2 00	2 00	2 00	2 00	1 65	......	1 75	......	2 25	2 75	3 00
Bricklayers	......	......	1 75	1 75	2 00	2 00	2 00	......	1 65	1 70	......	......	......	......	......
Pavers	......	......	......	......	1 25	......	1 10	1 10	1 00	1 00	......	......	1 35	1 60	1 90
Tile-layers	......	......	......	......	1 10	1 10	1 10	1 10	1 00	......	......	......	......	......	......

TABLE *showing the rate of pay per day from the commencement of the work to November 1st, 1873 (continued).*

(The working day previous to April, 1870, was ten hours; since that date it is computed at eight hours.)

	1865.		1866.		1867.		1868.		1869.		1870.		1871.		1872.		1873.	
	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.
Foremen........	$3 00	$3 00	$3 00	$3 00	$3 50	$3 50	$3 50	$4 00	$4 00	$4 00	$4 00	$4 00	$4 50	$4 50	$4 50	$4 50	$4 50	$4 50
Assistant foremen.	2 25	2 25	.....	.....	......	......	.....	......	......	......	......	......	3 00	3 00	......	......	3 00	3 00
Laborers.........	1 90	1 90	1 90	1 90	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00
Double Teams...	4 70	4 70	4 70	5 00	5 50	5 50	5 50	5 50	5 50	5 50	5 44	5 44	5 44	5 44	5 44	5 44	5 44	5 44
Carts...........	3 40	3 40	3 40	3 40	3 80	3 80	3 80	3 80	3 80	3 80	3 60	3 60	3 60	3 60	3 60	3 60	3 60	3 60
Blacksmiths......	3 25	3 25	3 25	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50
Helpers.........	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00
Carpenters.......	3 25	3 35	3 25	3 50	3 50	3 50	3 50	4 00	4 00	4 00	4 00	4 00	4 00	4 00	4 00	4 00	4 00	4 00
Rockmen........	2 00	2 00	2 00	.....	......	......	......	2 25	2 25	2 25	2 24	2 24	2 24	2 24	2 24	2 24	2 24	2 24
Blasters.........	.....	.....	.....	.....	......	......	......	2 50	2 50	2 50	2 44	2 44	2 44	2 44	2 44	2 44	2 44	2 44
Hand-drillers....	.....	.....	.....	.....	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Gardeners.......	2 00	2 00	2 00	2 00	2 10	2 10	2 10	2 35	2 35	2 35	2 40	2 40	2 40	2 40	2 50	2 50	2 50	2 50
Masons..........	3 50	3 50	3 50	3 50	4 00	4 00	4 00	4 50	4 50	4 50	4 24	4 24	4 24	4 24	4 24	4 24	4 24	4 24
Stone-cutters.....	3 50	3 00	3 50	3 50	4 00	4 00	4 00	4 25	4 25	4 50	4 24	4 24	4 24	4 24	4 24	4 24	4 24	4 24
Bricklayers......	.....	.....	.....	.....	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Pavers..........	.....	.....	.....	.....	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Tile-layers.......	.....	.....	.....	.....	......	......	......	......	......	......	......	......	......	......	......	......	......	......

John Bogart, Engineer
Otto Sibeth, Draughtsman

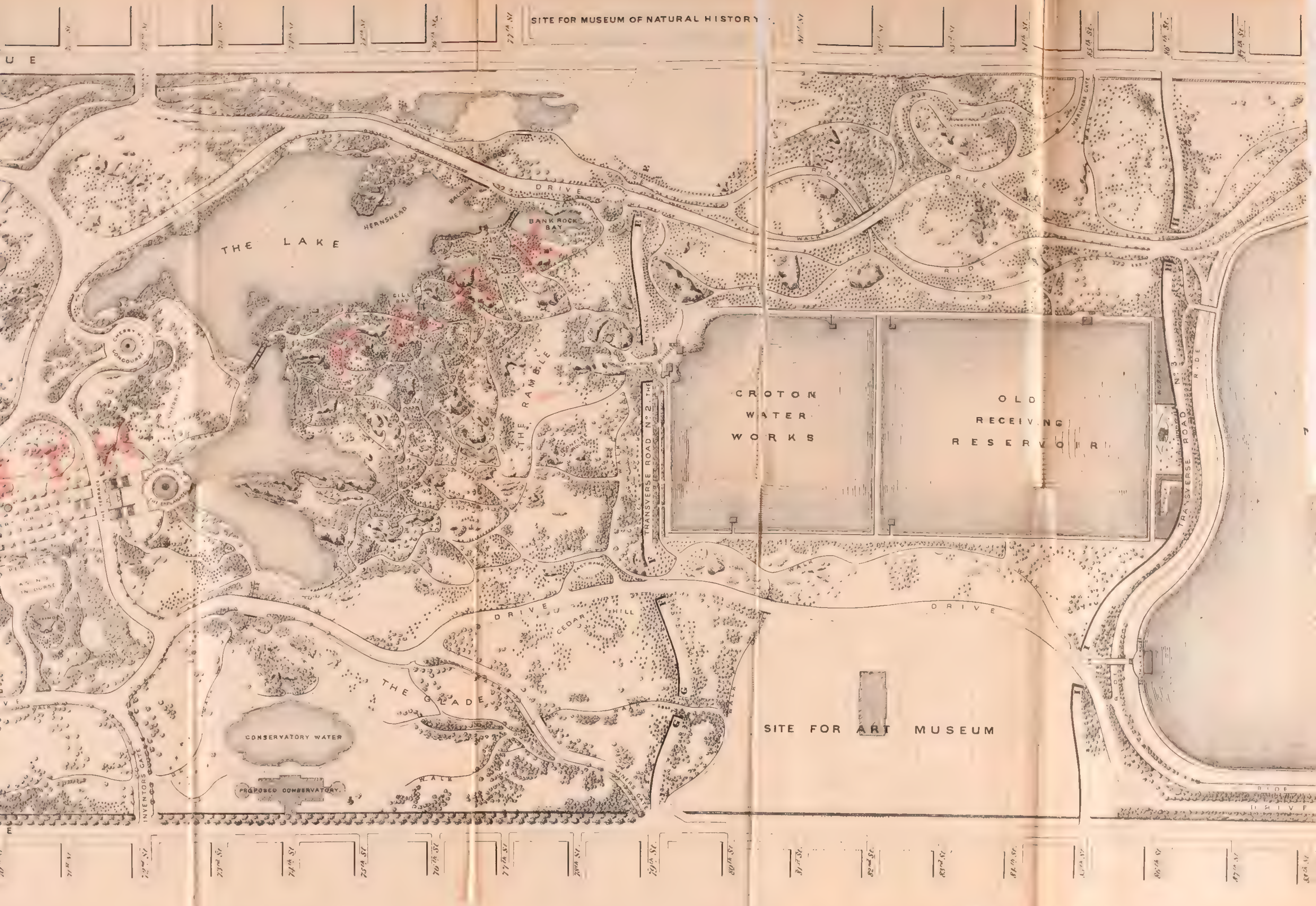
SCALE

This map shows the [illegible] face constructions, the bodies of water and the more prominent ledges of rock by usual indications, but does not show variations of surface except [illegible] figures of elevation.

Trees and shrubs are shown as follows: coniferous trees by a triple cross, thus ✱; deciduous trees figures of circuitous outline, slightly shaded, thus [illegible]; shrubs, by complex curved lines, thus [illegible]; trees with underwood are shown by a combination of the last two indications.

In a few crowded masses of trees the outlines of the figures are run together; in these cases the outer [illegible] of each mass only are accurately shown. Elsewhere and generally the position of each tree is indicated with precision.

The position of one [illegible] more specimens of 642 species and varieties of hardy trees and shrubs may be found on this map, by the aid of an



This map shows the surface constructions, the bodies of water and the more prominent ledges of rock, by [illegible] usual indications, but does not show variations of surface except by figures of levels.

Trees and shrubs are shown as follows: coniferous trees by a triple cross, thus ✕; deciduous trees [illegible] figures of circuitous outline, slightly shaded, thus; shrubs, by simple curved lines, thus, trees with underwood are shown by a combinat[illegible] of the last two indications.

In a few crowded masses of trees the outlines of the figures are run together; in these cases the outer [illegible]es of each mass only are accurately shown. Elsewhere and generally the position of each tree is indicated with precision.

The position of one or more specimens of 642 species and varieties of hardy trees and shrubs may be [illegible]and on this map, by the aid of an index prepared for the purpose; also, of 361 perennial and alpine plants in the open ground, and of 551 in [illegible] nursery and exotic collection.

MAP OF THE
CENTRAL PARK.

PRINTED FOR THE DEPARTMENT OF PUBLIC PARKS

Red figures indicate the elevation of the surface at points where they are placed, in feet, above high-water mark of the Hudson
The different [illegible] of the transverse roads are designated by capital letters
Certain designs [illegible] not yet under construction, are shown by a dotted line thus . . . [illegible] certain existing features not intended to be remain[illegible] thus. . . . . [illegible] where [illegible] is shown thus [illegible] where built to base of parapet, thus [illegible]
Red lines cross the map at distances representing 100 feet. they will facilitate measurements and reference to localities for example, K 52 states the position of [illegible] [illegible] line K to its crossing with line 52, and the number of lines crossed show it to be 5,200 feet from the south [illegible] [illegible] the letters and numbers apply to the series of squares opposite which they stand, for example, [illegible] 33 shows the [illegible] [illegible] Cherry Hill, within 100 feet of the west wing of the Terrace.

SCALE

F. [illegible] Olmsted [illegible]
Calvert Vaux